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South Carolina Department of Health
and Environmental Control

Part 70 Air Quality Permit

International Paper-Eastover Mill
4001 McCord's Ferry Road
Eastover, South Carolina 29044
(Permit Updated 9/14/12)

In accordance with the provisions of the Pollution Control Act, Sections 48-1-50(5) and 48-1-110(a), and the 1976 Code of Laws of South Carolina, as amended, Regulation 61-62, the above named permittee is hereby granted permission to discharge air contaminants into the ambient air. The Bureau of Air Quality authorizes the operation of this facility and its applicable equipment specified herein in accordance with valid construction permits, and the plans, specifications, and other information submitted in the Title V permit application received on April 27, 2005, as amended.

This permit is subject to and conditioned upon the terms, limitations, standards, and schedules contained in or specified on the 133 pages, with the accompanying attachments, of this permit.

Permit Number: TV- 1900-0046 **Effective Date Title V: January 1, 2009**
Issue Date: October 16, 2008 **Expiration Date Title V: December 31, 2013**

Director, Engineering Services Division
Bureau of Air Quality

RECORD OF REVISIONS			
Revision Number	**Final Revision Date**	**Type of Revision (AA, MM, SM)**	**Description of Change (Specific Parts, Sections, and Tables Revised or Added)**
1	9/14/12	AA	Changed MACT Subpart MM PM limit for No. 1 Smelt Dissolving Tank (ID381C at Emission Unit 06) in Conditions 06.5 and MACT.5 from 0.075 gr/dscf @ full rate to 0.096 gr/dscf @ full rate and cyclonic flow measurement.

AA = Administrative Amendment
MM = Minor Modification
SM = Significant Modification

Send copies of all revisions to Permit File, Regional EQC Office, US EPA, and Environmental Contact.

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PART 1.0 GENERAL INFORMATION

A. APPLICABLE PERMIT DATES

ISSUE DATE:	October 16, 2008
EFFECTIVE DATE:	January 1, 2009
EXPIRATION DATE:	December 31, 2013
RENEWAL APPLICATION DUE:	June 30, 2013

B. FACILITY INFORMATION

ENVIRONMENTAL CONTACT:	John W. Baker
CONTACT TELEPHONE NUMBER:	803 353 7440
CONTACT FAX NUMBER:	803 353 7026
INTERNET E-MAIL ADDRESS:	john.baker1@ipaper.com
FACILITY LOCATION:	4001 McCords Ferry Road, Eastover
COUNTY:	Richland
SIC CODE(S):	2611, 2621
NAICS CODE(S):	322121
AFS CODE:	

C. FACILITY MAILING ADDRESS

FACILITY NAME:	International Paper-Eastover Mill
ADDRESS:	4001 McCords Ferry Road, Eastover
CITY, STATE, ZIP CODE:	Eastover, South Carolina 29044

D. FACILITY BILLING ADDRESS

FACILITY BILLING NAME:	International Paper-Eastover Mill Environmental Engineering Manager
ADDRESS:	P.O. Box B
CITY, STATE, ZIP CODE:	Eastover, South Carolina 29044

PART 2.0 APPLICABILITY [SC Regulation 61-62.70.3(a)]

Condition Number	Condition
2.1	The following sources are subject to permitting requirements of Part 70: 1. Any major source; 2. Any source, including an area source, subject to a standard, limitation, or other requirement under Section 111 of the Clean Air Act (Act); 3. Any source, including an area source, subject to a standard or other requirement under Section 112 of the Act, except that a source is not required to obtain a permit solely because it is subjec to regulations or requirements under Section 112(r) of the Act; 4. Any affected source under the Title IV Acid Rain Program; 5. Any source in a so urce category designated by the Administrator of the US Environmental Protection Agency (US EPA) (Administrator) pursuant to this Section; and 6. Any source listed in SC Regulation 61-62.70.3(a) that is exempt from the requirement to obtain a permit under SC Regulation 61-62.70.3(b) may opt to apply for a permit under this Part 70 program.
2.2	The following source categories are exempted from the obligation to obtain a Part 70 permit, but are no exempted from other SC Department of Health and Environmental Control (Department) and US EPA requirements [SC Regulation 61-62.70.3(b)(4)]: 1. All sources and source categories that would be required to obtain a permit solely because they are subject to 40 CFR 60, Subpart AAA- Standards of Performance for New Residential Wood Heaters; and 2. All sources and source categories that would be required to obtain a permit solely because they are subject to 40 CFR 61, Subpart M- National Emission Standard for Hazardous Air Pollutants for Asbestos, Section 61.145, Standard for Demolition and Renovation.
2.3	Any person that operates or proposes to operate a particular source or installation may submit a request writing that the Department make a determination as to whether a particular source or installation is subject to the permit requirements of Part 70. The request must contain such information as is believed sufficient for the Department to make the requested determination. The Department may request any additional information that it needs for purposes of making the determination. [SC Regulation 61 - 62.70.3(e)]

PART 3.0 GENERAL CONDITIONS

This part describes conditions and provisions applicable to all Part 70 sources. Specific source category conditions and requirements are contained in Part 5.0 of this permit.

A. PERMIT ISSUANCE [SC Regulation 61-62.70.7(a)(1)]

Condition Number	Condition
3.A.1	A Title V operating permit does not excuse any facility from the preconstruction permitting requiremen under SC Regulation 61-62.1.
3.A.2	A permit, permit modification, or renewal may be issued only if the following conditions have been met 1. The Department has received a complete application for a permit, permit modification, or pern renewal; 2. Except for modifications qualifying for minor permit modificatio n procedures under SC Regulation 61-62.70.7(e)(2) and (3) the Department has complied with the requirements for public participation under SC Regulation 61-62.70.7(h); 3. The Department has complied with the requirements for notifying and responding to affected

Condition Number	Condition
	States under SC Regulation 61-62.70.8(b); 4. The conditions of the permit provide for compliance with all applicable requirements and the requirements of Part 70; and 5. The Administrator has received a copy of the proposed permit and any notices required under SC Regulation 61-62.70.8(a) and (b), and has not objected to issuance of the permit under SC Regulation 61-62.70.8(c) within the required time frame.

B. PERMIT RENEWAL AND EXPIRATION [SC Regulation 61-62.70.7(c)]

Condition Number	Condition
3.B.1	Permits being renewed are subject to the same procedural requirements, including those for public participation, affected State and US EPA review, that apply to initial permit issuance; and
3.B.2	Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with SC Regulation 61-62.70.5(a)(1)(iii), 62.70.5(a)(2)(iv), and 62.70.7(b). In this case, the permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the permit including any permit shield that may be granted pursuant to SC Regulation 61-62.70.6(f) shall remain in effect until the renewal permit has been issued or denied.

C. SEVERABILITY [SC Regulation 61-62.70.6(a)(5)]

Condition Number	Condition
3.C.1	The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

D. FEE ASSESSMENT AND PAYMENT [SC Regulation 61-62.70.6(a)(7)]

Condition Number	Condition
3.D.1	The owners or operators of Part 70 sources shall pay fees to the Department consistent with the fee schedule approved pursuant to South Carolina Regulation 61-62.70.9.

E. SUBMITTAL OF INFORMATION [SC Regulation 61-62.70.6(a)(6)(v)]

Condition Number	Condition
3.E.1	The permittee shall furnish to the Department, within a reasonable time, any information that the Department may request, in writing, to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality. The Department may also request that the permittee furnish such records directly to the Administrator along with a claim of confidentiality.

F. PUBLIC PARTICIPATION [SC Regulation 61-62.70.7(h)]

Condition Number	Condition
3.F.1	Except for modifications qualifying for minor permit modification procedure, all permit proceedings, including initial permit issuance, significant modifications, and renewals, shall provide adequate procedures for public notice including offering an opportunity for public comment and hearing on the draft permit. These procedures shall meet all requirements of SC Regulation 61-62.70.7(h).

G. PERMIT REOPENING [SC Regulation 61-62.70.7(f)]

Condition Number	Condition
3.G.1	The permit may be modified, revoked, reopened and reissued, or terminated for cause by the Department. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [SC Regulation 61-62.70.6(a)(6)(iii)].
3.G.2	This permit shall be reopened and revised under any of the following circumstances: 1. Additional applicable requirements under the Act become applicable to a major Part 70 source with a remaining permit term of three or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement unless the regulation specifically provides for a longer compliance period. No such reopening is required the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to SC Regulation 61-62.70.7(c)(1)(ii). 2. Additional requirements, including excess emission requirements, become applicable to an affected source under the acid rain program. Excess emissions offset plans shall be deemed to be incorporated into this permit upon approval by the Administrator. 3. The Department or US EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit. 4. The Administrator or the Department determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
3.G.3	Proceedings to reopen and issue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Such reopening shall be as expeditious as practicable. Reopenings shall not be initiated before a notice of such intent is provided to the Part 70 source by the Department at least thirty (30) days in advance of the date that the permit is to be reopened, except that the Department may provide a shorter time period in the case of an emergency.

H. TEMPORARY SOURCES [SC Regulation 61-62.70.6(e)]

Condition Number	Condition
3.H.1	The Department may issue a single permit authorizing emissions from similar operations by the same source owner or operator at multiple temporary locations. The operation must be temporary and involve at least one change in location during the term of the permit. No sources subject to Title IV of the Act shall be permitted as a temporary source. Permits for temporary sources shall include all requirements of SC Regulation 61-62.70.6(e).

I. EMERGENCY PROVISIONS [SC Regulation 61-62.70.6(g)(3)]

Condition Number	Condition
3.I.1	In the case of an emergency, as defined in SC Regulation 61-62.70.6(g), the permittee shall demonstrate an affirmative defense of emergency through properly signed, contemporaneous operating logs, or other relevant evidence that: 1. An emergency occurred and that the permittee can identify the cause(s) of the emergency; 2. The permitted facility was at the time being properly operated; and 3. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.
3.I.2	Additionally, the permittee shall submit verbal notification of the emergency to the Department within twenty-four (24) hours of the time when emission limitations were exceeded, followed by written notifications within thirty (30) days. This notice fulfills the requirement of SC Regulation 61-62.70.6(a)(3)(iii)(B). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
3.I.3	This provision is in addition to any emergency or upset provision contained in any applicable requirement. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

J. PROPERTY RIGHTS [SC Regulation 61-62.70.6(a)(6)(iv)]

Condition Number	Condition
3.J.1	This permit does not convey any property rights of any sort, or any exclusive privilege.

K. ECONOMIC INCENTIVES, MARKETABLE PERMITS, EMISSION TRADING [SC Regulation 61-62.70.6(a)(8)]

Condition Number	Condition
3.K.1	No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.

L. TITLE IV SOURCES [SC Regulation 61-62.70.6(a)(4)]

Condition Number	Condition
3.L.1	Where an applicable requirement of the Act is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, both provisions shall be incorporated into the permit and shall be enforceable by the Administrator. [SC Regulation 61-62.70.6(a)(1)(ii)]
3.L.2	The permittee is prohibited from emissions exceeding any allowances that the source lawfully holds under Title IV of the Act or the regulations promulgated thereunder. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement. No limit shall be placed on the number of allowances held by a source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement. Any such allowances shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Act.

M. ADMINISTRATIVE PERMIT AMENDMENTS [SC Regulation 61-62.70.7(d)(3)]

Condition Number	Condition
3.M.1	An administrative permit amendment as defined in SC Regulation 61-62.70.7(d) can be made by the Department consistent with the following: 1. The Department shall take no more than sixty (60) days from receipt of a request for an administrative permit amendment to take final action on such request, and may incorporate such changes without providing notice to the public or affected States provided that it designates any such permit revisions as having been made pursuant to this paragraph. 2. The Department shall submit a copy of the revised permit to the Administrator. 3. The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request, except transfer/ownership which must comply with SC Regulation 61-62.1, Section II(M).

N. MINOR PERMIT MODIFICATIONS [SC Regulation 61-62.70.7(e)(2)]

Condition Number	Condition
3.N.1	Minor permit modifications can be made by the Department in accordance with SC Regulation 61-62.70.7(e)(2)(i). An application requesting the use of minor permit modification procedures shall meet the requirements of SC Regulation 61-62.70.5(c) and shall include items as specified in SC Regulation 61-62.70.7(e)(2)(ii).
3.N.2	The Department may modify the procedure outlined in SC Regulation 61-62.70.7(e)(2) to process groups of a source's applications for certain modifications eligible for minor permit modification processing. Group processing of minor permit applications will proceed as outlined in SC Regulation 61-62.70.7(e)(3).

O. SIGNIFICANT MODIFICATION PROCEDURES [SC Regulation 61-62.70.7(e)(4)]

Condition Number	Condition
3.O.1	Significant permit modification procedures shall be used for applications requesting permit modifications listed in SC Regulation 61-62.70.7(e)(4)(i). Significant permit modifications shall meet all requirements of Part 70, including those for applications, public participation, review by affected States, and review by US EPA, as they apply to permit issuance and permit renewal.

P. DUTY TO COMPLY [SC Regulation 61-62.70.6(a)(6)(i)]

Condition Number	Condition
3.P.1	The permittee must comply with all of the conditions of this permit. Any permit noncompliance constitutes a violation of the SC Pollution Control Act and/or the Federal Clean Air Act and is grounds enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of permit renewal application.

Q. INSPECTION AND ENTRY [SC Regulation 61-62.70.6(c)(2)]

Condition Number	Condition
3.Q.1	Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Department or an authorized representative to perform the following: 1. Enter upon the permittee's premises where a Part 70 source is located or emissions -related activity is conducted, or where records must be kept under the conditions of the permit. 2. Have access to and copy, at reasonable times, any records that must be kept under the conditio of the permit. 3. Inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit. 4. As authorized by the Act and/or the SC Pollution Control Act, sample or monitor at reasonabl times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

R. COMPLIANCE REQUIREMENTS [SC Regulation 61-62.70.6(c)(5)]

Condition Number	Condition
3.R.1	Consistent with SC Regulations 61-62.70.6(a)(3), 61-62.70.6(a)(3)(iii)(A), and 61-62.70.6(c)(5), this permit contains compliance certification, testing, monitoring, reporting, and record keeping requirements sufficient to assure compliance with the terms and conditions of this permit. Any application form, rep or compliance certification shall contain a certification by a responsible official (as defined by SC Regulation 61-62.70.2(cc)) that meets the requirements of SC Regulation 61-62.70.5(d).
3.R.2	The responsible official (as defined by 61 -62.70.2(cc)) shall certify, annually, compliance with the conditions of this permit as required under SC Regulation 61-62.70.6(c). The compliance certification shall include the following: 1. The identification of each term or condition of the permit that is the basis of the certification. 2. The identification of the method(s) or means used for determining the status of compliance wi the terms and conditio ns of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent The certification shall be based on the method or means designated in 61 -62.70.6(c)(5)(iii)(B). The certification shall identify each deviation and take it into account in the compliance certification. 3. The status of compliance with the terms and conditions of the permit for the period covered by the certification. 4. Such other facts as the Department may required determine the compliance status of the source
3.R.3	All annual compliance certifications shall be sent to the United States Environmental Protection Agency (US EPA) and the South Carolina Department of Health and Environmental Control - Bureau of Air Quality (SC DHEC - BAQ) at the following addresses: **US EPA, Region 4** **Air Enforcement Branch** **61 Forsyth Street** **Atlanta, GA 30303** **SC DHEC - BAQ** **Technical Management Section** **2600 Bull Street** **Columbia, SC 29201**

Condition Number	Condition
3.R.4	Unless elsewhere specified within this permit, all reports required under this permit shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality, at the address listed below, SC DHEC - BAQ Technical Management Section 2600 Bull Street Columbia, SC 29201
3.R.5	Reporting required in this permit, shall be submitted in a timely manner as directed in Part 6.0 of this permit.

S. RECORD KEEPING REQUIREMENTS [SC Regulation 61-62.70.6(a)(3)(ii)]

Condition Number	Condition
3.S.1	The permittee shall comply, where applicable, with the following monitoring/support information collection and retention record keeping requirements: 1. Records of required monitoring information that include the following: a. The date, place as defined in the permit, and time of sampling or measurements; b. The date(s) analyses were performed; c. The company or entity that performed the analyses; d. The analytical techniques or methods used; e. The results of such analyses; and f. The operating conditions as existing at the time of sampling or measurement; 2. Retention of records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

T. SCHEDULE OF COMPLIANCE [SC Regulation 61-62.70.5(c)(8)]

Condition Number	Condition
3.T.1	The permittee shall submit a compliance schedule that contains the following for all Part 70 sources that are not in compliance with all applicable rules: 1. A description of the source's compliance status and where appropriate a compliance schedule with respect to all applicable requirements as follows: a. For applicable requirements with which the source is in compliance, a statement that during the permit term the source will continue to comply with such requirements. b. For applicable requirements that will become effective during the permit term, a statement that the source will meet such requirements on a timely basis, unless a more detailed schedule is expressly required by the applicable requirement. c. A schedule of compliance for sources that are not in compliance with all applicable requirements at the time of permit issuance. This schedule shall include a narrative description of how the source will achieve compliance with such requirements, a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with all applicable requirements for which the source will be in noncompliance at the time of permit issuance. This compliance schedule shall be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance

Condition Number	Condition
	shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based. 2. A schedule for submission of certified progress reports no less frequently than every six (6) months for sources required to have a schedule of compliance to remedy a violation. Progress reports shall meet the requirements of SC Regulation 61-62.70.6(c)(4)(i) and (ii). 3. The compliance plan content requirements specified in this paragraph shall apply and be included in the acid rain portion of a compliance plan for an affected source, except as specifically superseded by regulations promulgated under Title IV of the Act with regard to the schedule and method(s) the source will use to achieve compliance with acid rain emissions limitations.

U. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE [SC Regulation 61 - 62.70.6(a)(6)(ii)]

Condition Number	Condition
3.U.1	It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

V. OPERATIONAL FLEXIBILITY [SC Regulation 61-62.70.7(e)(5)]

Condition Number	Condition
3.V.1	Changes under the Clean Air Act, Section 502(b)(10), are changes that contravene an express permit term. Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements. A permitted facility is authorized to make section 502(b)(10) changes within its facility without requiring a permit revision, if the changes are not modifications under any provision of Title I of the Act and the changes do not exceed the emissions allowable under this permit. The permitted facility shall provide the Administrator and the Department written notification as required by SC Regulation 61-62.70.7(e)(5) at least seven (7) days prior to such changes.

PART 4.0 FACILITY WIDE REQUIREMENTS

Condition Number	Condition
4.1	In accordance with SC Regulation 61-62.1, Section II, the permittee must comply with all applicable Air Quality statutes and regulations of the United States and the State of South Carolina. This permit does not relieve the permittee from compliance with applicable local laws, ordinances, and regulations such as but not exclusive to zoning, building permits, and other programs regulated by entities other than the Bureau of Air Quality.

Condition Number	Condition
4.2	Air dispersion modeling (or other method) has demonstrated that this facility's operation will not interf with the attainment and maintenance of any state or federal ambient air standard. Any changes in the parameters used in the air dispersion modeling may require a review by the facility to determine continuing compliance with these standards. These potential changes include any decrease in stack height, decrease in stack velocity, increase in stack diameter, decrease in stack exit temperature, increas in building height or building additions, increase in emission rates, decrease in distance between stack a property line, changes in vertical stack orie ntation, and installation of a rain cap that impedes vertical flow. Parameters that are not required in the determination will not invalidate the demonstration if they are modified. The emission rates used in the determination are listed in Attachment A of this permit. Higher emission rates may be administratively incorporated into Attachment A of this permit provided demonstration using these higher emission rates shows the attainment and maintenance of any state or federal ambient air quality standard or with any other applicable requirement. Variations from the input parameters in the demonstration shall not constitute a violation unless the maximum allowable ambient concentrations identified in the standard are exceeded. This is a State Only enforceable requirement.
4.3	The owner or operator shall maintain this facility at or below the emission rates as listed in Attachment not to exceed the pollutant limitations of this Part 70 operating permit. Should the facility wish to increase the emission rates listed in Attachment A, not to exceed the pollutant limitations in the body of this permit, it may do so by the administrative process specified in condition 4.2. This is a State Only enforceable requirement.
4.4	A list of equipment which are considered insignificant pursuant to SC Regulation 61-62.70.5(c) has been submitted with your Title V application and reviewed by the Department. The list, including source descriptions and citation for insignificant status, is summarized in Attachment B of the permit. Attachment B excludes those activities identified in Part A of the insignificant activities list. Written notification to the Bureau of Air Quality is required for the addition of any new equipment which may meet the definition of insignificant or exempt as described above, excluding those sources listed in Part of the insignificant activities list.
4.5	In accordance with SC Regulation 61-62.1, Section II(J), for all sources not required to have continuous emissions monitors, any malfunction of air pollution control equipment or system, process upset or othe equipment failure which results in discharges of air contaminants lasting for one hour or more and whic are greater than those discharges described for normal operation in the permit application shall be reported to the local Environmental Quality Control (EQC) Regional office within twenty-four (24) hours after the beginning of the occurrence. The permittee shall also submit a written report within thirty (30 days of the occurrence. This report shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality (BAQ). The report shall contain as a minimum, the following: the identity of the stack and/or emission point where the excess emissions occurred, the magnitude of excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the excess emissions, the time and duration of excess emissions, the identity of the equipment causing the excess emissions, the steps taken to remedy the malfunction and th steps taken or planned to prevent the recurrence of such malfunction, the steps taken to limit the excess emissions, and documentation that control equipment, process equipment, and processes were at all times maintained and operated, to the maximum extent practicable, in a manner that was consistent with good practice for minimizing emissions. This defines the Department's definition of prompt in its relation to the degree of reporting as specified by SC Regulation 61-62.70.6(a)(3)(iii)(B).
4.6	The owners or operators of Part 70 sources shall complete and submit a new updated emissions invento consistent with the schedule approved pursuant to SC Regulation 61-62.1, Section III. This requirement notwithstanding, an emissions inventory may be required at any time in order to determine the complia status of any facility.
4.7	The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CF Part 82, Subpart F, Protection of Stratospheric Ozone, Recycling and Emissions Reduction, except as provided for motor vehicle air conditioners (MVACs) in Subpart B. If the permittee performs a service on motor (fleet) vehicles that involves ozone-depleting substance refrigerant in MVACs, the permittee is subject to all applicable requirements of 40 CFR Part 82, Subpart B, Servicing of MVACs.

Condition Number	Condition
4.8	The permittee shall comply with the standards of performance for asbestos abatement operations pursua to 40 CFR Part 61.145 and SC Regulation 61-86.1, including, but not limited to, requirements governing training, licensing, notification, work practice, cleanup, and disposal.
4.9	The permittee shall comply with SC Regulation 61-62.4 "Hazardous Air Pollution Conditions".
4.10	The permittee shall comply with SC Regulation 61-62.2 "Prohibition of Open Burning".
4.11	The permittee shall comply with SC Regulation 61-62.6 "Control of Fugitive Particulate Matter", Sectio III "Control of Fugitive Particulate Matter Statewide".
4.12	The "Net Volatile Organic Compound (VOC) Emissions Increase" from this facility shall not exceed 1 tons since July 1, 1979. The "Net VOC Emissions Increase" includes any increases and decreases in th actual VOC emissions at the facility that have occurred since July 1, 1979 and are otherwise creditable. Increases in the VOC emissions from these existing sources may be subject to the applicability requirements of SC Regulation 61 -62.5, Standard No. 5.1, Best Available Control Technology (BACT)/Lowest Achievable Emission Rate ("LAER") Applicable To Volatile Organic Compounds. Sources of VOC emissions that currently apply LAER are not included in the "Net VOC Emissions Increase" netting.
4.13	This facility is subject to the provisions o f 40 CFR Part 60, Standards Of Performance For New Stationary Sources (NSPS), Subparts A-General Provisions, BB-Standards Of Performance For Kraft Pulp Mills; D-Standards Of Performance For Fossil-Fuel Fired Steam Generators For Which Constructio Is Commenced After August 17, 1971; Db -Standards Of Performance For Industrial -Commercial-Institutional Steam Generating Units; and Y-Standards Of Performance For Coal Preparation Plants. In addition to meeting the applicable emission limitations the permittee shall comply with the applicable notification, performance testing, monitoring, record keeping, and reporting requirements listed in 40 CFR 60, Subparts A (§§60.1 -60.19), BB (§§60.280 -60.285), D (§§60.40 -60.48), and Db (§§60.40b - 60.49b).
4.14	International Paper -Eastover Facility will maintain documentation on site to demonstrate that the electrical consumption of the Eastover facility was equal to or greater than two thirds of the potential electrical output (in MWe-hrs) or electrical power supplied to any utility power distribution system for sale was equal to or less than 219,000 MWe -hrs actual electric output on an annual basis. The annual electrical consumption from each calendar year will be averaged on a three year rolling average, as per 40CFR72.6(a)(1)(iv) and (b)(4)(i) to determine continuous compliance. Note that any steam supplied t steam distribution system for the purpose of providing steam to a steam -electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of International Paper-Eastover Mill. Failure to comply with this requirement will result in additional regulatory review and may result in additional compliance requirements.

PART 5.0 EMISSION UNIT REQUIREMENTS

A. EMISSION UNIT DESCRIPTION

TABLE 5.1 EMISSION UNITS		
Unit ID	**Unit Description**	**Control Device Description**
01	Woodyard	N/A
02	Pulp Mill/Oxygen Delignification	Thermal Oxidizer; Scrubber
03	Bleaching	Scrubbers
04	Finished Products	Baghouses
05	Recausticizing	Scrubbers; ESP; Baghouse
06	Chemical Recovery	ESPs; Scrubbers
07	Power Boilers	Multiclones; ESPs
08	Miscellaneous	None

Table 5.2 - Control Device(s)				
Unit ID	**Control Device ID**	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
02	331A	No. 2 NCG Incinerator	July 31, 1989	TRS/VOC/HAP
02	331A	No. 2 NCG Incinerator Scrubber	July 31, 1989	SO_2
02	331B	Methanol Rectification System	July 31, 1989	HAP
03	401U	No. 1 Bleach Plant Scrubber	August 1, 1997	Cl_2
03	402A	No. 2 Bleach Plant Scrubber	July 31, 1989	Cl_2
03	412A	No. 1 Chlorine Dioxide Plant Scrubber	Feb 25, 1982 (July 31, 1989)	Cl_2
03	413A	No. 2 Chlorine Dioxide Plant Scrubber	December 29,1999	Cl_2
04	460A	No.1 Starch System Baghouse	Feb 25, 1982 (January 20, 2005)	PM/PM_{10}
04	460B	No.2 Starch System Baghouse	May 13, 1991 (July 26, 2005)	PM/PM_{10}
05	360C	No.1 Green Liquor Slaker Scrubber	Feb 25, 1982	PM/PM_{10}
05	361F	No.2 Green Liquor Slaker Scrubber	July 31, 1989	PM/PM_{10}
05	371A	No.1 Lime Kiln Scrubber	Feb 25, 1982 (July, 1995)	PM/PM_{10}
05	371C	Pneumatic Lime Unloading Baghouse	Dec, 1985	PM/PM_{10}
05	372A	No. 2 Lime Kiln Precipitator	July 31, 1989	PM/PM_{10}
06	381A	No. 1 Recovery Furnace ESP	Feb 25, 1982	PM/PM_{10}
06	381C	No.1 Smelt Dissolving Tank Scrubber	Feb 25, 1982	PM/PM_{10} TRS
06	382A	No. 2 Recovery Furnace ESP	July 31, 1989	PM/PM_{10}
06	382B	No.2 Smelt Dissolving Tank Scrubber	July 31, 1989 (Nov, 1995)	PM/PM_{10} TRS
07	501A	No.1 Power Boiler ESP	Feb 25, 1982	PM/PM_{10}
07	501A	No.1 Power Boiler Mechanical Dust Collector (Multicyclones)	Feb 25, 1982	PM/PM_{10}
07	502A	No.2 Power Boiler Mechanical Dust Collector (Multicyclones)	July 31, 1989	PM/PM_{10}
07	502A	No.2 Power Boiler ESP	July 31, 1989	PM/PM_{10}
07	501A	No.1 Power Boiler	Feb 25, 1982	TRS/VOC/HAP
07	502A	No.2 Power Boiler	July 31, 1989	TRS/VOC/HAP

B. GENERIC CONDITIONS

GENERIC CONDITIONS			
Condition Number	**Unit ID**	**Equipment ID**	**Condition**
GC1	01-08	All affected sources	All gauges required shall be readily accessible and easily read by operating personnel and Bureau personnel (i.e. on ground level, control rooms, or easily accessible level). Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site. Unless specified otherwise in this permit, exceedance of operational range shall not be considered a violation of an emission limit of this

GENERIC CONDITIONS			
Condition Number	**Unit ID**	**Equipment ID**	**Condition**
			permit, unless the exceedance is also accompanied by other information demonstratin that a violation of an emission limit has taken place. Reports of these incidences shal be submitted semiannually. If no incidences occurred during the reporting period the a letter shall indicate such. Any alternative method for monitoring control device performance must be preapproved by the Bureau and shall be incorporated into the permit aset forth in SC Regulation 61-62.70.7.
GC2	01-08	All affected sources	Unless otherwise specified in a condition, the owner or operator shall submit site - specific test plans or a letter which amends a previously approved test plan at least 45 days prior to the proposed test date. If the only amendments to a previously approved test plan are to facility information in 61 -62.1 Section IV (C)(1), these shall be submitted at least two weeks prior to the proposed test date. Prior to conducting a source test, the owner or operator shall ensure that written notification is submitted to the Department at least two weeks prior to the test date. Required source testing shall be conducted in accordance with South Carolina Regulation 61 -62.1, Section IV – "Source T ests" and any applicable Federal regulation. Site specific test plans and test notifications shall be submitted as required All source test and CMS evaluation reports shall be submitted to the Manager of the Source Evaluation Section, Bureau of Air Quali ty, no later than 30 days after the completion of the on-site testing unless additional time is approved by the Department
GC3	01-08	All affected sources	The owner or operator shall maintain on file all measurements including continuous monitoring system or monitoring device performance measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required in a permanent form suitable for inspection by Bureau personnel for the duration required.
GC4	01-08	All affected sources	Unless elsewhere specified within this permit, all records required to demonstrate compliance with the limits established under this permit shall be maintained on site fo a period of at least five (5) years from the date following each generated occurrence, measurement, maintenance, corrective action, report, or record and shall be made available to a Bureau representative upon request. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on paper, on microfiche, on compact discs, on digital versatile discs, on removable storage drives, or any other mass data storage devices provided the permittee maintains any technology, equipment, software, or hardware necessary to access the stored data.
GC5	02, 05, 06, 07	All NSPS sources	The Permittee shall furnish the Director of Engineering Services, Bureau of Air Quality (BAQ) written notification of any physical or operational change to an existin facility which may increase the emission rate of any air pollutant, unless that change i specifically exempted under 40 CFR 60.14 (e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced. The report shall include information describing the precise nature of the change, present and proposed emission control systems, produc tive capacity of the facility before and after the change and expected completion date of the change. The BAQ may request additiona relevant information subsequent to this notice.
GC6	01-08	All affected sources	Equipment capacities provided under the Eq uipment Description column of the Equipment Tables in Part 5.C and Part 7.A.1 are not intended to be permit limits unless otherwise specified within the Table of Conditions for the particular equipmen

GENERIC CONDITIONS			
Condition Number	**Unit ID**	**Equipment ID**	**Condition**
			However, this condition does not exempt the facilityfrom the construction permitting process, from PSD review, nor from any other applicable requirements that must be addressed prior to increasing production rates.

C. EMISSION UNIT – LIMITATIONS, MONITORING AND REPORTING

[SC Regulation 61-62.1, Section II]; [SC Regulation 61-62.70.6(a)(3)(i)(B)]

Table 5.3 - Unit ID 01 - Woodyard				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
303A	4,800,000 tpy chips Woodyard: (wood receiving; log storage; feed deck; de-barking drums; chippers; screening; conveying; stacker/reclaimer; chip storage	2/25/82	N/A	303AF

Table 5.4 - Control Device(s) For Unit ID 01 - Woodyard			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
None	None	None	None

Conditions For Unit ID 01 - Woodyard			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
01.1	303A	•Fugitive •*SC Std. 4* •*SC Std. 62.6*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •Woodyard (303A) The affected sources(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* ❑ *[SC Reg. 61-62.6 {Control of Fugitive Particulate Matter} (SC Std. 62.6)]* All non-enclosed operations shall be conducted in such a manner that a minimum of particulate matter (PM) becomes airborne In no case shall established air quality standard be exceeded at or beyond the property line. The owner or operator shall maintain dust control on the premises by suitable measures. Oil treatment is prohibited. *[SC Reg. 61-62.5, Std. 4, Sec. X(A) and X(B); §61-62.6*

Conditions For Unit ID 01 - Woodyard			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			Testing: Not Required **Monitoring/Record Keeping/Reporting/Other:** The owner or operator shall perform visual emissions inspections (VE) in accordance with the frequencies and procedures in Facility Wide Condition FW.4 (Part 5, Section D).
01.2	303A	•Opacity •PM •*SC Std. 4* •*SC Std. 7*	**Limits/Standards [State Only: No]** : The follow ing are affected source(s) for this condition: •Woodyard (303A) **(A): Opacity Limitations:** The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];* ❑ *[SC Reg. 61-62.5,l Standard No. 7 {PSD} (SC Std. 7)]* Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40%.*[SC Reg. 61-62.5, Std. 4, Sec. IX(B)]* In addition to the SC Std. 4 limitation the affected source is subject to more stringent prevention of significant deterioration (PSD) best available control technology (BACT) opacity limitation that must be met. Visib le emissions shall not exhibit opacity greater than 20% as established by SC PSD permitting activities. **(B) Particulate Matter (PM) Limitations:** The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* PM emissions shall be limited to the rate specified by use of the following equations: for process weight rates less than or equal to 30 tons per hour ($E = 4.10P^{0.67}$) and for process weight rates greater than 30 tons per hour ($E = 55.0P^{0.11} - 40$) where E = the allowable emission rate in pounds per hour and P = process weight rate in tons per hour. As such, emission unit ID 01's allowable particulate matter emissionlimit is limited to the amount shown in Table 01.2.T1 below at its nominal production rating.*[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]* **Table 01.2.T1 PM Limitations for ID 01: 303A** | **Equipment** | **PM Limit (lb/hr)** | **Process Weight Rate for Limit Calculation (tph)** | | 303A (total) | ≤ 62.63 | 410.9 | lb/hr = Pounds per hour tph = tons per hour **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** The owner or operator shall perform visual emissions inspections (VE) in accordance with the frequencies and procedures in Facility Wide Condition FW.4 (Part 5, Section D) .

Table 5.5 - Unit ID 02 – Pulp Mill/Oxygen Delignification

Equipment ID	Description	Installation Date (Modification) Date	Control Device ID	Stack ID
311A	374,000 ADTP/yr No. 1 Continuous Digester System: (continuous digester; flash tanks; blow tank; chip bin; steaming vessel; low pressure feeder; separators; relief gas condensers/coolers)	2/25/82	331A 501A 502A	331ASCE 501ASCE 502ASCE
312A	616,000 ADTP/yr No. 2 Continuous Digester System: (continuous digester; flash tanks; chip bin; blow tank; steaming vessel; low pressure feeder; separators; relief gas condensers/coolers)	7/31/89	331A 501A 502A	331ASCE 501ASCE 502ASCE
321A	374,000 ADTP/yr No. 1 Brown Stock Washing System: (No. l-1 brownstock washer; No. 1 knotters, No. 1 rejects blend chest No. 1 rejects refiner feed chest; No. 1 low density brown stock chest; foam tank, No. 1 -1 BSW filtrate tank) and No. 1 knot drainers, No. 1 knot bucket eleva tor; No. 1 refiner metering feeder, refiners; and No. 1 weak black liquor tank	2/25/82	501A 502A	501ASCE 502ASCE
322A	616,000 ADTP/yr No. 2 Brown Stock Washing System: (No. 2-1 brownstock washer,No. 2-2 brownstock washer, No. 2 knotters, No. 2 rejects blend chest, No. 2 rejects refiner feed chest, No. 2-1 BSW filtrate tank, No. 2-2 BSW pressate tank, No. 2 BSW interstage chest) and No. 2 knot drainers, No. 2 knot bucket elevator, No. 2 refiner metering feeder, refiners, and No. 3 weak black liquor tank	2/25/82	501A 502A	501ASCE 502ASCE
330A	No.1 Condensate Stripper System: (stripper feed tank; heat exchangers; stripper column; reflux flash tank)	2/25/82	331A 331B 502A	331ASCE 502 ASCE
330B	No. 1 Condensate Collection Tank	2/25/82	N/A	330BV
331A	No. 2 NCG Incinerator and Scrubber: (incinerator; incinerator; condensate seal pot; quench tower; scrubber)	7/31/89		331ASCE
331A	NCG Condensate Tank	7/31/89	501A 502A	501ASCE 502ASCE
331B	Methanol Rectification System: (rectifier column; condensers; heat exchanger; decanter; pump tank; methanol/turpentine decanter; methanol storage tank)	7/31/89	331A 502A	331ASCE 502ASCE
340A	Turpentine System: (decanter; weir box; storage tank; standpipes)	2/25/82	331A 502A	331ASCE 502ASCE
351A	No. 1 Evaporator System: (multiple effect evaporators; condensers; heat exchangers; flash tanks; vacuum system; level tanks) and No. 2 weak liquor tank; dump tank, No. 1 and No. 2 swing liquor tanks; liquor foam tank, 65% heavy black liquor tank	2/25/82	331A 501A 502A	331ASCE 501ASCE 502ASCE
351B	No. 1 Soap Tank	2/25/82	N/A	351BV
351C	No. 1 Soap Skimmer Standpipe	2/25/82	N/A	351CV

Table 5.5 - Unit ID 02 – Pulp Mill/Oxygen Delignification				
Equipment ID	**Description**	**Installation Date (Modification) Date**	**Control Device ID**	**Stack ID**
352A	No.2 Condensate Stripper System: (stripper feed tank; heat exchangers; stripper column; reflux flash tank; condensers)	7/31/89	331A 331B 502A	331ASCE 502ASCE
352B	No. 2 Evaporator System: (multiple effect evaporators; flash tanks; condenser; heat exchangers; concentrator; vacuum system; level tanks) and No. 4 weak liquor tank; No. 3 swing liquor tank; 70 % heavy black liquor tank	7/31/89	331A 501A 502A	331ASCE 501ASCE 502ASCE
352C	No. 2 Condensate Collection Tank	7/31/89	N/A	352CV
352D	No. 2 Soap Skimmer Standpipe	7/31/89	N/A	352DV
401A	340,000 ODTP/yr No. 1 O_2 Reactor	2/25/82	N/A	401AV
401D	340,000 ODTP/yr No. 1 O_2-2 Washer Filtrate Tank	2/25/82 (2005)	502A	502ASCE
401E	340,000 ODTP/yr No. 1 O_2-1 Washer Filtrate Tank	2/25/82 (2005)	502A	502ASCE
401H	878,738 ODTP/yr White Liquor Oxidation Tank	2/25/82 (2005)	N/A	401HV
401J	340,000 ODTP/yr No. 1 O_2 Blow Tank	2/25/82 (2005)	502A	502ASCE
401M	340,000 Twin Roll Pressate Tank	2/25/82 (2005)	502A	502ASCE
401N	340,000 ODTP/yr Two (2) No. 1 O_2 Washers	2/25/82 (2005)	502A	502ASCE
401V	340,000 ODTP/yr No. 1 O_2 Blend Chest	2/25/82 (2005)	502A	502ASCE
401W	340,000 No. 1 Twin Roll Presses	2/25/82 (2005)	502A	502ASCE
402C	560,000 ODTP/yr No. 2 O_2 Blow Tank/Interstage Chest	7/31/89 (2005)	502A	502ASCE
402D	560,000 ODTP/yr No. 2 O_2-1 Washer Pressate Tank	7/31/89 (2005)	502A	502ASCE
402E	560,000 ODTP/yr No. 2 O_2-2 Washer Pressate Tank	7/31/89 (2005)	502A	502ASCE
402G	560,000 ODTP/yr No. 2 O_2 Reactor	7/31/89	N/A	402GV
402H	560,000 ODTP/yr Two (2) No. 2 O_2 Washers	7/31/89 (2005)	502A	502ASCE

Table 5.6 - Control Device(s) For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
331A	No. 2 NCG Incinerator	July 31, 1989	TRS/VOC/HAP
331A	No. 2 NCG Incinerator Scrubber	July 31, 1989	SO_2
331B	Methanol Rectification System	July 31, 1989	HAP
501A	No.1 Power Boiler	Feb 25, 1982	TRS/VOC/HAP
502A	No.2 Power Boiler	July 31, 1989	TRS/VOC/HAP

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
02.1	311A 311B 312A 312B 321A 321C 322A 322B 330A	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: See Table 02.1.T1and 02.1.T2 below. The a ffected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* Where construction or modification began on or before Dece mber 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affect

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
	330B 331B 340A 351A 351B 351C 352A 352B 352C 352D 401A 401D 401E 401H 401J 401M 401N 401V 401W 402C 402D 402E 402G 402H		sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, Opacity limitations for the affected sources are shown in Table 02.1.T1 and 02.1T2 below. *[SC Reg. 61-62.5, Sec. XI(A) and (B)]*

Table 02.1.T1 Opacity Limitations (40%) for ID 02:Various Equipment

Equipment	Affected Source Description	Opacity Limit (%)
311A	No. 1 Continuous Digester System	≤ 40
311B	No. 1 Chip Chute Dump Tank	≤ 40
321A	No. 1 Brown Stock Washing System	≤ 40
321C	No. 1 Spill Prevention Catch Tank	≤ 40
330A	No. 1 Condensate Stripper System	≤ 40
330B	No. 1 Condensate Collection Tank	≤ 40
340A	Turpentine System	≤ 40
351A	No. 1 Evaporator System	≤ 40
351B	No. 1 Soap Tank	≤ 40
351C	No. 1 Soap Skimmer Standpipe	≤ 40
401A	No. 1 O_2 Reactor	≤ 40
401H	White Liquor Oxidation Tank	≤ 40

Table 02.1.T2 Opacity Limitations (20%) for ID 02:Various Equipment

Equipment	Affected Source Description	Opacity Limit (%)
312A	No. 2 Continuous Digester System	≤ 20
312B	No. 2 Chip Chute Dump Tank	≤ 20
322A	No. 2 Brown Stock Washing System	≤ 20
322B	No. 2 Spill Prevention Catch Tank	≤ 20
331B	Methanol Rectification System	≤ 20
352A	No. 2 Condensate Stripper System Feed Tank	≤ 20
352B	No. 2 Evaporator System	≤ 20
352C	No. 2 Condensate Collection Tank	≤ 20
352D	No. 2 Soap Skimmer Standpipe	≤ 20
401D	No. 1 O_2-2 Washer Filtrate Tank	≤ 20
401E	No. 1 O_2-1 Washer Filtrate Tank	≤ 20

Table 02.1.T2 Opacity Limitations (20%) for ID 02:Various Equipment

Equipment	Affected Source Description	Opacity Limit (%)
401J	No. 1 O_2 Reactor Blow Tank	≤ 20
401M	Twin Roll Pressate Tank	≤ 20
401N	Two (2) No. 1 O_2 Washers	≤ 20
401V	No. 1 O_2 Blend Chest	≤ 20
401W	No. 1 Twin Roll Presses	≤ 20
402C	No. 2 O_2 Blow Tank/Interstage Chest	≤ 20
402D	No. 2 O_2-1 Washer Pressate Tank	≤ 20
402E	No. 2 O_2-2 Washer Pressate Tank	≤ 20
402G	No. 2 O_2 Reactor	≤ 20
402H	Two (2) No. 2 O_2 Washers	≤ 20

≤ = Less than or equal to

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			Testing: Not Required **Monitoring/Record Keeping/Reporting/Other:** Not Required. This equipment processes and/or stores pulp, various pulping process liquors, crude soap, pulping filtrates pulping condensates, crude turpentine, and crude methanol that have no potential visible emissions.
02.2	331A	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 2 NCG Incinerator (331A) The affected so urce(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. *[SC Reg. 61-62.5, Sec. XI(A) and (B)]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other: No. 2 NCG Incinerator [331A] Scrubber [331A] Continuous Parameter Monitoring** -The owner or operator shall continue to operate and maintain liquid flow indicators on the scrubber module for the affected source. Scrubber liquid recirculation flow shall be recorded at the frequency in Table 02.2 .T1 below during source operation. The scrubber shall be in place and operational whenever processes controlled by the scrubber (NCG Incinerator} are running except during periods of scrubber malfunction or mechanical failure. **Table 02.2.T1 NCG Incinerator TV Parameter Opacity Monitoring for Scrubber 331A** **Monitoring Method** / **Sampling Frequency/Averaging Time** **Monitoring:** (SC Std 4) □ Scrubber liquid recirculation flow indicator / **Frequency**: Minimum of once each shift **Averaging**: No averaging time Operational ranges for the monitored parameters for the affected sources have been established to provide a reasonable assurance of compliance with applicable limitations (See ATTACHMENT H, Table H -1). These operational ranges for the monitored parameters were derived from stack test data, vendor certification, operational history, and visual inspections, the combination of which, demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Monitoring parameter records shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site. Semiannual summary reports of any exceedances of established ranges for operational parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department. If no incidences occurred during the reporting period then the report shall indicate such information.
02.3		•TRS	**Limits/Standards [State Only: No]:** The following are affected source(s) for this

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
	311A 312A 330A 331A 331B 340A 351A 352A 352B	•*NSPS BB* •*SC Std. 7* •*CAM*	condition: • Low volume high concentration (LVHC) sources in: •No.1 Continuous Digester System (311A), •No. 2 Continuous Digester System (312A), •No.1 Condensate Stripper System (330A), •No. 2 NCG Incinerator (331A), •Methanol Rectification System (331B), •Turpentine Recovery System (340A), •No.1 Evaporator System (351A), •No.2 Condensate Stripper System (352A), •No.2 Evaporator System (352B) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {S tandards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* □ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* □ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)]* □ *[NSPS 40 CFR 60.13(i) EPA and DHEC approved alternative temperature monitoring]* In accordance with NSPS BB and South Carolina Standard 7 PSD BACT requirements, the total reduced sulfur (TRS) gases from the affected sources must be less than or equal 5 parts per million by volume on a dry basis, corrected to 10 percent oxygen [5 ppmv (dry basis) 10% O_2)] or reduced using methods that include combustion in a combustion devic or incinerator. Any uncontrolled exhaust gases from a new, modified, or reconstructed digester system, No. 1 Continuous Digester and No. 2 Continuous Digester, shall contain TRS less than 0.01 pounds per ton of air dried pulp (lb/T ADP) The No. 2 NCG Incinerator combusts the TRS gaseous emissions from specific NSPS concentrated regulated feed streams as well as feed stre ams regulated based on PSD permitting activities. The specific sources in affected systems that require collection an control under NSPS and PSD are listed in Table E -1 of ATTACHMENT E, which is considered a Federally enforceable part of this condition and permit. NSPS BB specifies specific temperature and residence time conditions for incinerators used to combust TRS gases collected from affected sources. However, based on the desi of No. 2 NCG Incinerator, the Administrator approved a request fo r an alternative monitoring method for NSPS Subpart BB TRS reduction under 40 CFR 60.13(i). The alternative monitoring requires combustion of TRS gases collected and combusted with other waste gases in No. 2 NCG Incinerator at a minimum temperature of 1450 □F for at least 0.15 second. The No. 2 Power Boiler serves as a backup control device for the No. NCG Incinerator. **Testing:** **(A): Affected Sources: [311A, 312A, 330A, 331B, 340A, 351A, 352A, 352B]** -Not Required **(B): Periodic Testing/Monitoring: Affected Source: No. 2 NCG Incinerator [331A]**- Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable TRS emission limits for the affected source. Source testi shall be conducted four (4) years in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 16/16A will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61 62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. Compliance shall be determined by averaging the test run

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			emission rates over the test run durations as specified in the required test protocol. For periodic monitoring purposes if a unit exceeds 80 percent of its TRS emission limitation during a stack test, stack tests shall be scheduled and conducted annually. Upo demonstration that the source is operating under 80 percent of its TRS limit, as shown by two consecutive annual stack tests in which emissions are less than 80% of the standard, the source may resume stack testing every 4 years. All source test reports shall be submitted to the Manager of the Source Evaluation Section of the Bureau of Air Quality n later than 30 days after the completion of the on-site testing. **Monitoring/Record Keeping/Reporting/Other:** **(A): NSPS and Continuous Assurance Monitoring (CAM): Affected Source: No. 2 NCG Incinerator [331A] -** This source is subject to 40 CFR 64, CAM, and shall comply with all applicable provisions. The Bureau considers the required continuous parameter monitoring system (CPMS) for incinerator combustion temperature monitoring required NSPS BB and 40 CFR 63, Subparts A and S (MACT S) along with tracking periods whe TRS gases from affected sources are not combusted (TRS gases vented prior to combustion in the NCG incinerator) to be presumptively acceptable CAM monitoring pursuant to §64.2(b)(1)(i) or (vi) for reasonable assurance of continuing compliance with the TRS limitations of SC Std 7 and NSPS BB. Alternative monitoring (temperature anc combustion time) were approved. T he owner or operator shall continue to calibrate, maintain, and operate a continuous monitoring system (CMS) which measures and record the combustion temperature at the point of incineration of affected effluent gases routed t the NCG incinerator as measured by the CPMS as well as vent tracking as CAM indicato for TRS limitations. To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in Table 02.3.T1 below as well as take corrective action based on the excursion shown in ATTACHMENT H, Table H -1. [§§64.6(c)(1)(iii) and 64.3(b)(b)]. **Table 02.3.T1 NCG Incinerator CAM TRS Monitoring for Incinerator 331A** **Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** **CAM Indicator(s):** (SC Std. 4 and NSPS BB) □ NCG combustion temperature CPMS □ Track and record of venting of untreated TRS gases | **Frequency**: □ Temperature measured and recorded at lest once every 15-minute successive period □ Tracking as events occur **Data Collection**: Manual and/or computer record keeping | **Averaging**: No averaging **Table 02.3.T1 NCG Incinerator CAM TRS Monitoring for Incinerator 331A** **Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** **Monitor Requirements:** □ 40 CFR 60.13 □ §60.284(b) (Temperature certification) Approved TRS alternative monitoring | Operational ranges for the monitored CAM indicators for the affected sources have been established to provide a reasonable assurance of compliance with applicable limitations.

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			The NCG combustion temperature CAM indicator excursion range will be the same as th excess emission (NSPS) definition(s) for TRS incineration. These operational rangs for the monitored parameters were derived from stack test data, vendor certification, and operational history the combination of which, demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Upon detecting an excursion, (any 5 minute period below the CAM excursion range and/o any 5 minute period of venting affected sources) the owner or operator shall restore operation of the pollutant -specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). Data recorded during periods of CMS breakdown, repair, calibration checks, and zero and span adjustments shall not be included in the data averages. NSPS BB approved alternative monitoring defines periods of excess emissions as all periods in excess of 5 minutes and their duration during which the combustion temperature at the point of incineration is less than 1450 ^{O}F. The owner or operator shall also track periods when TRS gases from any affected source are vented to the atmosphere prior to combustion. Excess emissions also include periods when affected sources are bypassed prior to the control device. The Bureau will not consider periods of excess emissions to be indicative of a violation provided that the Bureau determines that the affected facility, including air pollution control equipment, is maintained and operated in a manner which is consistent with good air pollution control practice for minimizing emissions during periods of excess emission The owner or operator shall keep all applicable record keeping required by §60.7 and mee all calibration, operation, maintenance,and quality control/quality assurance requirements of §60.13. The owner or operator shall submit a semiannual Excess Emissions and Monitoring Systems Performance report and/or a Summary report for affected sources. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period less than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or th total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted. Reports shall include the information required by §60.7(c) and §60.7(d) and shall be submitted to the Bureau. If there are no excess em issions during the reporting period, the report should state such information. **(B): TRS Back Up Compliance Assurance Monitoring (CAM) -Affected Sources:**

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			[311A, 312A, 330A, 331B, 340A, 351A, 352A, 352B] The affected sources are subject to 40 CFR 64, CAM and shall comply with all applicable provisions. Bypass vent times and other TRS collection system losses will be used as the CAM indicators. The emissions are controlled at the boilers; therefore, see TRS conditions for the No. 1 and No. 2 Power Boilers (ID 07 Equipment No. 501A and 502B) for specific CAM monitoring, record keeping, and reporting.
02.4	311A 312A 321A 321C 322A 322B 351A 352A	•TRS •*NSPS BB* •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •High volume low concentration (HVLC) sources in •No.1 Continuous Digester System (311A), •No. 2 Continuous Digester System (312A), •No. 1 Brown Stock Washing System (321A), •No. 2 Brown Stock Washing System (322A), •No. 1 Evaporators (351A), and •No. 2 Evaporators (352A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* □ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* In accordance with NSPS BB and SC Std. 7 PSD BACT requirements, the TRS gases from the affected sources must be less than or equal to 5 parts per million by volume on a dry basis, corrected to 10 percent oxygen [5 ppmv (dry basis) 10% O_2)] or reduced using methods that include combustion in a combustion device or incinerator. Any uncontrolled exhaust gases from a new, modified, or reconstructed digester system, No. 1 Continuous Digester and No. 2 Continuous Digester, shall contain TRS less than 0.01 pounds per ton of air dried pulp (lb/T ADP) The TRS gases from specific LVHC and HVLC sources are collected as part of the dilute NCG system and are combusted in the No. 1 Power Boiler with No. 2 Power Boiler as a backup control device. No minimum combustion temperature or residence time is required when the dilute NCG gases are combusted in either boiler. The specific sources in affective systems that require c ollection are listed in Table E -1 of ATTACHMENT E, which is considered a Federally enforceable part of this condition and permit. **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other: Boiler TRS Incineration [ID 07:501A; 502A] Compliance Assurance Monitoring (CAM): Affected Sources:** -The affected sources are subject to 40 CFR 64, CAM and shall comply with all applicable provisions. No CMS is required for combustion of NCG in 501A or 502A. B ypass vent times and other TRS collection system losses will be used as the CAM indicators. The emissions are controlled at the boilers; therefore, see TRS conditions for the No. 1 and No. 2 Power Boilers (ID 087 Equipment No. 501A and 502A) for specific CAM monitoring, record keeping, and reporting.
02.5	331A	•Metals and HCl •*SC Std. 3*	**Limits/Standards [State Only: Yes]** : The following are affected source(s) for this condition: •No. 2 NCG Incinerator (331A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)]*

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			The affected source is permitted to burn rectified methanol in the affected source and the source is subject to all applicable requirements of SC Std. 3. When burning rectified methanol the limitations listed in Table 02.5.T1 below must be met. *[SC Reg. 61-62.5, Std. 3, Sec. III(J)]* **Table 02.5.T1 Std. 3 Limitations for ID 02: 331A** **Pollutant** — **Pollutant Limit [1]** nickel (Ni) — ≤ 6.0 x 10^{-3} lb/10^6 Btu total heat input cadmium (Cd) — ≤ 1.0 x 10^{-4} lb / 10^6 BTU total heat input chromium (Cr) — ≤ 7.4 x 10^{-4} lb / 10^6 BTU total heat input arsenic (As) — ≤ 1.7 x 10^{-3} lb / 10^6 BTU total heat input lead (Pb) — ≤ 5.0 x 10^{-3} lb / 10^6 BTU total heat input hydrochloric acid (HCl) — ≤ 0.45 lb / 10^6 BTU total heat input ≤ = greater than or equal to Notes: 1. The total heat input value shall include the Btu from the waste and virgin fuel used for production **Testing:** An initial analysis of the rectified methanol was required. The analysis was completed and approved for the following: □ Classify all waste burned as either hazardous or non-hazardous. □ Each waste stream and each waste batch/shipment that is to be burned shall be identified by waste analysis or special knowledge of the waste for those air toxic compounds identified in SC Regulation 61-62.5, Standard 8. □ Analysis to determine heat value; total halogen; percent nitrogen; percent sulfur, percent ash □ Analysis to determine total metals, HCl and BTU content No other analysis is required because the calculated values were less than or equal to 50% of the emission standards. **Monitoring/Record Keeping/Reporting/Other:** Not required. On-site rectified methanol has been certified by initial fuel testing to meet SC. Std. 3 requirements.
02.6	331A	•SO_2 •CO •NO_X •*SC Std. 7* •*CAM (SO_2)*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: • No. 2 NCG Incinerator (331A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* □ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)](SO_2 only)* The affected source is subject to all applicable requirements of SC Std. 7. The source shall not exceed the prevention of significant deterioration (PSD) best available control technology (BACT) emission limitations listed in Table 02.6.T1 below. **Table 02.6.T1 SO_2,CO, and NOx Limitations for ID 02: 331A**

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**

Pollutant	Pollutant Limit	Pollutant Units
Sulfur Dioxide (SO_2)	≤ 1971	tpy
Carbon Monoxide (CO)	≤ 800	tpy
Nitrogen Oxides (NOx)	≤ 478	tpy

tpy = tons per year
≤ = less than or equal to

Testing:
(A): SO_2-Not Required

(B): Periodic Testing for CO and NO_x-Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable CO and NOx emission limits for the affected source. Source testing shall be conducted every four (4) years in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 10 (CO) and 7-7E (NOx) will be used to show compliance with CO and NOx limits, respectively. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. Compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol.

For periodic monitoring purposes if a unit exceeds 50 percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four years. All source test reports shall be submitted to the Manager of the Source Evaluation Section of the Bureau of Air Quality no later than 30 days after the completion of the on-site testing.

Monitoring/Record Keeping/Reporting/Other:
(A): Fuel Use-The affected source is permitted to burn only propane, No. 2 fuel oil and rectified methanol as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Bureau.

(B): Record Keeping and Reporting-See Condition FW.3 for record keeping and reporting requirements for annual SO_2, CO, and NO_X emission limitations.

(C): Parameter Compliance Assurance Monitoring (CAM) for SO_2-The affected source is subject to 40 CFR 64, Compliance Assurance Monitoring (CAM) and shall comply with all applicable provisions. The owner or operator shall install, continue to operate, and maintain a continuous parameter monitoring system (CPMS) to measure flow for scrubber caustic makeup to the NCG Incinerator Scrubber as a CAM Indicator.

To meet the requirements of 40 CFR 64, the owner or operator shall maintain the parameter(s) and indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table 02.6.T2 below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT H, Table H-1. [§64.6(c)(1)(iii) and 64.3(b)]

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			.

Table 02.6.T2 NCG Incinerator CAM Parameter Monitoring for Scrubber 331A	
SO_2 Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
CAM Indicator: □ Scrubber caustic flow CPMS **Data Collection**: Manual and/or computer record keeping	**Frequency**: scrubber flow measured at least once every 15 minutes
Monitor requirements: □ Installed to provide representative data □ Develop operation maintenance, and QA/QC control and assurance practices to ensure continuing validity of data.	**Averaging**: Monthly averaging time

Operational ranges for the monitored CAM indicator for the affected sources have been established for CAM excursions to provide a reasonable assurance of compliance with applicable limitations. These operational ranges for the monitored parameter was derived from stack test data and/or vendor information which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval.

Upon detecting an CAM excursion (monthly average scrubber caustic flow over excursion range and annualized monthly average over the SO_2 annual limit} the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable i n accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an exceedance of the annual SO_2 limitation (any 12-month rolling average over the annual SO_2 limitation). To avoid restricting permitted flexibility, the corrective action for an excursion may be limited to ensuring that an exceedance of the annual SO_2 limitation does not occur.

The owner or operator shall develop quality assurance and control practices that are adequate to ensure the continuing validity of the data.

A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:

- □ Summary information of the number, duration and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken;
- □ Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);
- □ If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the p lan has been completed and reduced the likelihood of similar levels of excursions occurring.

Conditions For Unit ID 02 – Kraft Process: Kraft Pulp Mill			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			The owner or operator shall maintain records of monitoring data, monitor performance data, corrective action, and quality improvement plans.
02.7	See Condition	•HAP (Pulping Vents) •*MACT S*	The following are affected sources for this condition: 311A, 312A, 321A, 321C, 322B, 330A, 331A, 331B, 340A, 351A, 352A, 352B, 401D, 401E, 401J, 401M, 401N, 401V, 401W, 402C, 402D, 402E, 402H This facility, including the affec ted sources for this emission unit, is subject to all applicable limits and requirements of *NESHAP 40 CFR 63 Subparts A {General Provisions}; S-{National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}; and SC Reg. 61 -62.63 (MACT S) for affected pulp system vents.* See Part 7.0 for limitations, notification, testing, monitoring, inspection, SSM, record keeping, and reporting requirements of MACT S.
02.8	311A 312A 340A 330A 351A 352A 352B	•HAP (Pulp Condensates) •*MACT S*	This facility, including the affected sources for this emission unit, is subject to all applicable limits and requirements of *NESHAP 40 CFR 63 Subparts A {General Provisions}; S-{National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}; and SC Reg. 61 -62.63 (MACT S)* for affected pulp system condensates. See Part 7.0 for limitations, notification, testing, monitoring, inspection, SSM, record keeping, and reporting requirements of MACT S.
02.9	331A	•Facility wide NO_X •SC Agreement	The limitations and requirements for the facility wide nitrogen oxides (NO_X) emissions for affected sources, including this source, are listed in Facility Wide Condition FW.2 (Part 5 Section D).
02.10	351A	•PSD Significance Monitoring •*SC Std. 7*	See Facility Wide Condition FW.1 (Part 5, Section D) for SC Reg. 61 -62.5, Std. 7(r) record keeping and reporting requirements for Construction Permit 1900-0046-DI.

Table 5.7 - Unit ID 03 – Bleaching				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
401I	340,000 ODTP/yr No. 1 E_O Tower	2/25/82	N/A	401IS
401U	340,000 ODTP/yr No. 1 DE_OD Bleach Plant: (chemical mixer; reaction tower; three washers; three seal tanks; second chemical mixer; second reaction tower)	2/25/82: 12/29/99	401U	401USCE
402A	560,000 ODTP/yr No. 2 DE_OD Bleach Plant: (chemical mixer; reaction tower; two washers; three seal tanks; second chemical mixer; second reaction tower)	2/25/82: 12/29/99	402A	402ASCE
402B	560,000 ODTP/yr No. 2 E_O Tower	7/31/89	N/A	402BS
402K	560,000 ODTP/yr No. 2 E_O Washer	7/31/89	N/A	402KS
412A	9,855 tpy ClO_2 No. 1 Chlorine Dioxide Plant: (generator; absorber; saltcake filter; two storage tanks)	7/31/89	412A	412ASCE

Table 5.7 - Unit ID 03 – Bleaching				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
412B	25,000 gallon Chlorine Dioxide Methanol Tank	7/31/89	N/A	412BV
413A	22,000 tpy CLO_2 No. 2 Chlorine Dioxide Plant: generator; absorber; saltcake filter; two storage tanks	12/29/99	N/A	413ASCE

Table 5.8 - Control Device(s) For Unit ID 03 – Unit ID 03 – Bleaching			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
401U	No. 1 Bleach Plant Scrubber	August 1, 1997	Cl_2
402A	No. 2 Bleach Plant Scrubber	July 31, 1989	Cl_2
412A	No. 1 Chlorine Dioxide Plant Scrubber	Feb 25, 1982 July 31, 1989	Cl_2
413A	No. 2 Chlorine Dioxide Plant Scrubber	December 29,1999	Cl_2

Conditions For Unit ID 03 – Unit ID 03 – Bleaching			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
03.1	401I 402B 402K 412B	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]** : The f ollowing are affected source(s) for this condition: •See Table 02.1.T1 and Table 02.1.T2 below The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affect sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affect sources. As such, Opacity limitations for the affected sources are shown in table 02.1.T below: *[SC Reg. 61-62.5, Sec. XI(A) and (B)]* **Table 03.1.T1 Opacity Limitations for ID 03:Various Equipment** **Equipment** / **Affected Source Description** / **Opacity Limit (%)** 401I / No. 1 E Tower / ≤ 40 402B / No. 2 E_O Tower / ≤ 20 402K / No. 2 E_O Washer / ≤ 20 412B / Chlorine Dioxide Methanol Tank / ≤ 20 **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** Not Required. This equipment processes and/or stores pulp or methanol that have no potential visible emissions.
03.2	401U 402A	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 DE_OD Bleach Plant (401U), •No. 2 DE_OD Bleach Plant (402A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.):

Conditions For Unit ID 03 – Unit ID 03 – Bleaching			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)] Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. *[SC Reg. 61-62.5, Sec. XI(B)]* **Testing: Not Required** **Monitoring/Record Keeping/Reporting/Other: Continuous Opacity Monitoring -** Under the authority of §63.453(m) and §63.8(f), the owner or operator have been granted approval for alternative monitoring for required 40 CFR 63, Subpart S (MACT S) scrubber monitoring for the affected sources (401U and 402A). The owner or operator shall continue to operate and maintain the CPMS used monitor the approved parameters for MACT S monitoring for the affected sources to show reasonable assurance of compliance of the sources with SC Std. 4 opacity limitations. The monitoring frequencies and averaging times for the CPMS are show in Table 03.2.T1 below.The scrubber shall be in place and operational whenever processes controlled by the scrubbers are running, except during periods of scrubber malfunction or mechanical failure. *[SC Reg. 61 - 62.70(6)(3)(i)(A) {Streamlining}]* **Table 03.2.T1 Bleach Plant TV Parameter Monitoring for Scrubbers 401U and 402A** **Opacity Monitoring Method/Requirements** / **Sampling Frequency/Averaging Time** **401U Monitoring**: (SC Std. 4) Scrubber caustic makeup flow CPMS Scrubber pH (influent) CPMS Scrubber liquid recirculation flow CPMS Fan operation (use amps) CPMS **Frequency:** Minimum of once every 15 minutes **402A Monitoring:** (SC Std. 4) Scrubber liquid recirculation flow CPMS Scrubber pH (effluent) CPMS Fan operation (use amps) CPMS **Frequency:** Minimum of once every 15 minutes **Monitor Requirements**: Approved alternative MACT S monitoring **Averaging:** 3-hour averages Operational ranges for the monitored parameters have been established to indicate proper operation of the control devices (See Attachment H, Table H1). These operational ranges for the monitored parameters were derived from stack test data, vendor information, operational history, and/or visual inspections, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality. Semiannual reports, including any exceedance of established ranges for operational parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department. If no incidences occurred during the reporting period then the report shall indicate such information.
03.3	412A 413A	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Chlorine Dioxide Plant (412A), •No. 2 Chlorine Dioxide Plant (413A) The affected source(s) are subject to all applicable limits and requirements of the

Conditions For Unit ID 03 – Unit ID 03 – Bleaching			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. *[SC Reg. 61-62.5, Sec. XI(B)]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other: Continuous Parameter Monitoring for Opacity** -The owner or operator shall continue to operate, and maintain scrubber temperature indicators and liquid flow meters on each scrubber. The scrubber(s) shall be in place and operational whenever processes controlled by the scrubber(s) are running, except during periods of scrubber malfunction or mechanical failure. **Table 03.3.T1 ClO_2 Generator TV Parameter Monitoring for Scrubbers 312A and 313A** **Opacity Monitoring Method** / **Sampling Frequency/Averaging Time** **Monitoring:** □ Scrubber temperature indicators □ Scrubber liquid flow meters / **Frequency:** Scrubber Temperature and flow a minimum of once every shift **Averaging:** No averaging Operational ranges for the monitored parameters have been established to provide a reasonable assurance of compliance (See ATTACHMENT H, Table H -1). These operational ranges for the monitored parameters were derived from stack test data, vendor information, operational history, and/or visual inspections which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Semiannual reports, including any exceedance of established ranges for operational parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department. If no incidences occurred during the reporting period then the report shall indicate such information.
03.4	401U 402A	•CO •*SC Std. 7*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 DE_OD Bleach Plant (401U), •No. 2 DE_OD Bleach Plant (402A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* The source shall not exceed the prevention of significant deterioration (PSD) best available control technology (BACT) Carbon Monoxide (CO) emission limitations listed in Table 03.4.T1 below:

Conditions For Unit ID 03 – Unit ID 03 – Bleaching			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			Table 03.4.T1 ID 03 CO Limitations for ID 03: 401U and 402A **Equipment** / **CO Limit** / **CO Units** 401U / ≤ 159 / tpy 402A / ≤ 245 / tpy tpy = tons per year ≤ = less than or equal to **Testing:** Initial only (Completed) **PSD Annual Emission Monitoring**-See Facility Wide Condition FW.3(Part 5, Section D) for record keeping and reporting requirements.
03.5	412B	•VOL •*NSPS Kb*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •Chlorine Dioxide Methanol Storage Tank (412B) The affected source(s) are subject to all applicable limits a nd requirements of the following regulation(s) (reg.): ❑ [*NSPS 40 CFR 60, Subparts A {General Provisions}; Kb {Standards Of Performance For Volatile Organic Liquid (VOL) Storage Vessels (Including Petroleum Liquid Storage Vessels) For Which Construction, Reconstruction, Or Modification Commenced After July 23, 1984; and SC Reg. 61-62.60, Subparts A and Kb]* **Testing:** Not required **Monitoring/Record Keeping/Reporting/Other: Record** The owner or operator shall keep readily accessible records showing the dimensi on of the storage vessel and an analysis showing the capacity of the tank. These records shall be kept on site, for the lifetime of this source and be made available to a Bureau representative upon request. Records of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period shall also be maintained on site for at least five (5) years from the date generated. The Bureau shall be notified within 30 days when the maximum true vapor pressure o f the liquid exceeds 27.6 kPa. *[§60.110b(a), §60.116b(c) and §60.116b(d)]*
03.6	412A 413A	•ClO_2 •*SC Chemical Prevention Provisions*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 Chlorine Dioxide Generat or-Chlorine Dioxide Plant (412A), •No. 2 Chlorine Dioxide Generator Plant (413A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Regulation 61-62.68 {Chemical Accident Prevention Provisions}]* It has been determined that the Chlorine Dioxide (ClO_2) storage tanks are subject to South Carolina Regulation 61-62.68, Chemical Accident Prevention Provisions, due to in-process storage or use of a regulated substance, ClO_2, in quantities above the specified threshold and that a risk management plan (RMP) has already been submitted to the EPA; therefore the following must be completed: ❑ Submittal of subsequent revisions/updates of the RMP in accordance with SC Regulation 61-62.68.190. ❑ If it is determined by the Department that additional relevant information is needed, this facility will be required to submit the information in a timely manner. ❑ For Program 1 processes, the owner or operator shall submit along with the RMP the

Conditions For Unit ID 03 – Unit ID 03 – Bleaching			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			certification statement provided in Section 68.12(b)(4). For all other covered processes, the owner or operator shall submit along with the RMP a single certification that, to the best of the signer's knowledge, information, and belief formed after reasonable inquiry, the information submitted is true, accurate, and complete **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** Not Required
03.7	401U 402A	•HAP (Pulping Vents) •*MACT S*	This facility, including the affected sources for this emission unit, is subject to all applicable limits and requirements of *NESHAP 40 CFR 63 Subparts A {General Provisions};S-{National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}; and SC Reg. 61-62.63 (MACT S)* for bleach plant vents. See Part 7.0 for limitations, notification, testing, monitoring, inspection, SSM, record keeping, and reporting requirements of MACT S.

Table 5.9 - Unit ID 04 – Finished Products				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
441A	310,000 ADTFP/yr Pulp Machine: (cleaners; whitewater chests; stock chests; vacuum pumps; headbox; former; presses; dryers; conveying; pulpers)	7/31/89	N/A	441AS
441B	Hydrapulper	7/31/89	N/A	441BV
460A	44,000 TPY No. 1 Starch System: (truck unloading; rail unloading; blower; silo; baghouse)	2/25/82	460A	460AVCE
460B	41,902 TPY No. 2 Starch System: (truck unloading; rail unloading; blower; silo; baghouse)	5/13/91	460B	460BVCE
471A	550,000 ADTFP/yr No. 1 Paper Machine: (cleaners; screens; refiners; additive preparation; whitewater chests; stock chests; vacuum pumps; headbox; former; presses; dryers; starch section; calendar section; winder; rewinder; conveying; core handling; pulpers)	2/25/82	N/A	471AS
472A	520,000 ADTFP/yr No. 2 Paper Machine: (cleaners; screens; refiner; additive preparation; whitewater chests; stock chests; vacuum pumps; headbox; former; presses; dryers; starch section; calendar section; winder; rewinder; conveying; core handling; pulpers)	7/31/89: 2005	N/A	472AS

Table 5.10 - Control Device(s) For Unit ID 04 – Finished Products

Control Device ID	Description	Installation Date/ Modification Date	Pollutant Controlled
460A	No.1 Starch System Bag House	Feb 25, 1982 Jan 20, 2005	PM/PM_{10}
460B	No.2 Starch System Bag House	May 13, 1991 July 26, 2005	PM/PM_{10}

Conditions For Unit ID 04 – Finished Products

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
04.1	441A 441B 471A 472A	•Opacity •PM •*SC Std. 4*	**Limits/Standards [State Only: No]** : The followin g are affected source(s) for this condition: See Tables 04.1. **Opacity Limitations:** The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries (SC Std. 4)}]* Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, Opacity limitations for the affected sources are shown in Tables 04.1.T1and 04.1.T2 below: *[SC Reg. 61-62.5, Sec. XI(A) and (B)]* **Table 04.1.T1 Opacity Limitations for ID 04:Various Equipment** Equipment / Affected Source Description / Opacity Limit (%) 471A / No. 1 Paper Machine / ≤ 20 441A / Pulp Machine / ≤ 20 441B / Hydrapulper / ≤ 20 472A / No. 2 Paper Machine / ≤ 20 ≤ = less than or equal to **Particulate Matter (PM) Limitations**: The affected source(s) are subject to all applicabl limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4{Emissions from Process Industries (SC Std. 4)}]* PM emissions shall be limited to the rate specified by use of the following equations: for process weight rates less than or equal to 30 tons per hour ($E = 4.10P^{0.67}$) and for process weight rates greater than 30 tons per hour ($E = 55.0P^{0.11} - 40$) where E = the allowable emission rate in pounds per hour and P = process weight rate in tons per hour. As such, emission unit ID 01's allowable particulate matter emission limit is limited to the amount shown in Table 01.3.T1 below at its nominal production rating*[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]* **Table 04.1.T2 PM Limitations for ID 04: 441A, 471A, and 472A** Equip. No. / Equipment Description / PM Limit (lb/hr) / Process Weight Rate for Limit Calculation (tph) 441A / Pulp Machine / ≤ 41.42 / 35.4 471A / No. 1 Paper Machine / ≤ 46.72 / 62.8 472A / No. 2 Paper Machine / ≤ 46.19 / 59.4 lb/hr = pounds per hour tph = tons per hour ≤ = less than or equal to

Conditions For Unit ID 04 – Finished Products			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			Testing: Not Required **Monitoring/Record Keeping/Reporting/Other:** The owner or operator shall perform visual emissions inspections for 441A, 471A, and 472A using the frequencies and procedures in Facility Wide Condition FW.4(Part 5, Section D) The hydrapulper (441B) processes and/or stores only pulp slurry and VE are not required.
04.2	460A 460B	•Opacity •PM •*SC Std. 4* •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Starch System (460A), •No. 2 Starch System (460B) The affected source(s) are subject to all applicable limi ts and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD}(SC Std. 7)}]* **Opacity Limitations:** Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater tha 40% for the affected sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. In addition, 460A is also subject to more stringent prevention of significant deterioration (PSD) best available control technology (BACT) limitations. As such the affect sources mus t not exceed the opacity limitations listed in Table 04.2.T1 below: *[SC Reg. 61-62.5, Sec. XI(A) and (B)]* **Table 04.2.T1 Opacity Limitations for ID 04:460A and 460B** **Equipment** | **Opacity Limit (%)** | **Applicable Regulation** 460A | ≤ 20 | SC Std. 4 460A | ≤ 10 | SC Std. 7 (PSD) 460B | ≤ 20 | SC Std. 4 ≤= less than or equal to **Particulate Matter (PM) Limitations** : The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];* ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD}(SC Std. 7)}]* PM emissions shall be limited to the rate specified by use of the following equations: for process weight rates less than or equal to 30 tons per hour ($E = 4.10P^{0.67}$) and for process weight rates greater than 30 tons per hour ($E = 55.0P^{0.11} - 40$) where E = the allowable emission rate in pounds per hour and P = process weight rate in tons per hour. As such, t allowable PM emissions limit for *the* affected sources is limited to the amount shown in the table below at its nominal production rating. In addition, 460B is also subject to more stringent prevention of significant deterioration (PSD) best available control technology (BACT) limitations established by SC Std. 7. As such the affect sources must not exceed the PM limitations listed in Table 04.3.T1 below: *[SC Reg. 61-62.5, Std. 4, Sec. VIII]* **Table 04.2.T2 PM Limitations for ID 04:460A and 460B** **Equipment** | **PM Limit** | **Process Weight** | **Applicable**

Conditions For Unit ID 04 – Finished Products

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions

	(lb/hr)	Rate (tph) for calculation	Regulation
460A	≤ 40	30	SC Std. 4
460A	≤ 0.20	0.87	SC Std. 7 (PSD)
460B	≤ 40	30	SC Std. 4
460B	≤ 0.20	0.87	SC Std. 7 (PSD)

Testing: Not Required
Monitoring/Record Keeping/Reporting/Other: Continuous Parameter Monitoring for Opacity and PM -The owner or operator shall continue to operate and maintain pressure drop gauge(s) on each module of the Baghouse(s). Pressure drop readings shall be recorded at the frequency listed in Table 04.2.T3 below. The Baghouse(s) shall be in place and operational whenever processes controlled by the baghouse(s) are running, except during periods of baghouse malfunction or mechanical failure.

Table 04.2.T3 Starch Systems TV Parameter Monitoring for Baghousess 460A and 460B

Opacity Monitoring Method	Sampling Frequency/Averaging Time
Monitoring: (SC Std. 4 and SC Std. 7) □ Pressure drop gages	**Frequency**: At least once per day during source operation while unloading **Averaging**: No averaging

Operational ranges for the monitored parameters have been established to provide a reasonable assurance of compliance with opacity and PM limitations. (See ATTACHMENT H, Table H-1) These operational ranges for the monitored parameters were derived from stack test data, vendor information, operational history, and/or visual inspections, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters with su pporting documentation and quality assurance procedures. The operating ranges may be updated using this procedure, following submittal to the Directo of Engineering Services for approval. The revised ranges must be submitted with supporting documentation of data and/or information used to establish the ranges.

Semiannual reports, including any exceedance of established ranges for operational parameters and appropriate corrective action taken during the reporting period shall be submitted to the Department. If no incidences occurred during the reporting period then the report shall indicate such information.

04.3	471A	•PSD Significance Monitoring •*SC Std. 7*	See Facility Wide Condition FW.1 (Part 5, Section D) for SC Reg. 61 -62.5, Std. 7(r) record keeping and reporting requirements for Construction Permit 1900-0046-DF.

Table 5.11- Unit ID 05 – Recausticizing

Equipment ID	Description	Installation Date/ Modification Date	Control Device ID	Stack ID
360A	110,000 tpy CaO No. 1 Precoat Filter	2/25/82	N/A	360AV
360B	110,000 tpy CaO No. 1 Causticizer Tanks (4)	2/25/82	N/A	360BV
360C	110,000 tpy CaO No.1 Green Liquor Slaker	2/25/82	360C	360CSCE
360D	110,000 tpy CaO No.1 Green Liquor Clarifier	2/25/82	N/A	360DV
360E	110,000 tpy CaO No.1 White Liquor Pressure Filter	2/25/82	N/A	360EV

Table 5.11- Unit ID 05 – Recausticizing				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
360F	110,000 tpy CaO No.1 Mud Mix Tank	2/25/82	N/A	360FV
360G	110,000 tpy CaO No. 1 Lime Mud Pressure Filter	2/25/82	N/A	360GV
360H	No. 1 Lime Mud Tanks	2/25/82	N/A	360HV
360I	110,000 tpy CaO No. 1 Dregs Precoat Filter	2/25/82	N/A	360IV
360J	Green Liquor Tank	2/25/82	N/A	360JV
360K	Fillback Tank	2/25/82	N/A	360KV
360L	Fillback Settling Tank	2/25/82	N/A	360LV
360M	260,000 tpy CaO No.1 Swing Liquor Tank	2/25/82	N/A	360MV
360N	260,000 tpy CaO White Liquor Tank	2/25/82	N/A	360NV
360O	Chemical Spill Collection Tank	2/25/82	N/A	360OV
361A	150,000 tpy CaO No. 2 Lime Mud Pressure Filter	7/31/89	N/A	361AV
361B	150,000 tpy CaO No. 2 Precoat Filter	7/31/89	N/A	361BV
361C	150,000 tpy CaO No.2 White Liquor Pressure Filter	7/31/89	N/A	361CV
361D	150,000 tpy CaO No. 2 Dregs Precoat Filter	7/31/89	N/A	361DV
361E	150,000 tpy CaO No. 2 Causticizer Tanks (4)	7/31/89	N/A	361EV
361F	150,000 tpy CaO No.2 Green Liquor Slaker	7/31/89	361F	361FSCE
361G	150,000 tpy CaO No.2 Green Liquor Clarifier	7/31/89	N/A	361GV
361H	150,000tpy CaO No.2 Mud Mix Tank	7/31/89	N/A	361HV
361I	No. 2 Lime Mud Tanks	7/31/89	N/A	361IV
371A	110,000 tpy CaO No.1 Lime Kiln	2/25/82	371A	371ASCE
371C	33,858 tpy Fresh Lime System: (rail & truck unloading; bucket elevator; storage silo; conveying, baghouse for pneumatic truck unloading only)	2/25/82	371C	371CVCE
372A	150,000 tpy CaO No. 2 Lime Kiln	7/31/89	372A	372ASCE

Table 5.12-Control Device(s) For Unit ID 05 – Recausticizing			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
360C	No.1 Green Liquor Slaker Scrubber	Feb 25, 1982	PM/PM_{10}
361F	No.2 Green Liquor Slaker Scrubber	July 31, 1989	PM/PM_{10}
371A	No.1 Lime Kiln Scrubber	Feb 25, 1982 (July, 1995)	PM/PM_{10}
372A	No.2 Lime Kiln Electrostatic Precipitator (ESP)	July 31, 1989	PM/PM_{10}
371C	Fresh Lime Bin Baghouse	Dec, 1985	PM/PM_{10}

Conditions For Unit ID 05 – Recausticizing			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
05.1	360A 360B 360D 360E 360F 360G 360G 360H	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: See Table 02.1.T1 and 02.1.T2 below. The affected source(s) ar e subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries (SC Std. 4)}]*

Conditions For Unit ID 05 – Recausticizing

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
	360I 360J 360K 360L 360M 360N 361A 361B 361C 361D 361E 361G 361H 361I		Where construction or modification began on or before December 31, 1985, emiss ions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affect sources. Construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, Opacity limitations for the affected sources are shown in the Tables 05 1.T1 and 05.1.T2 below: *[SC Reg. 61-62.5, Std. 4, and Section. IX(A) and IX(B)]*

Table 05.1.T1Opacity Limitations (40%) for ID 05:Various Equipment

Equipment	Affected Source Description	Opacity Limit (%)
360A	No. 1 Precoat filter	≤ 40
360B	No. 1 Causticizer Tanks	≤ 40
360D	No.1 Green Liquor Clarifier	≤ 40
360E	No.1 White Liquor Pressure Filter	≤ 40
360G	No. 1 Lime Mud Pressure Filter	≤ 40
360I	No. 1 Dregs Precoat Filter	≤ 40
360J	Green Liquor Tank	≤ 40
360K	Fillback Tank	≤ 40
360L	Fillback Settling Tank	≤ 40
360M	No.1 Swing Liquor Tank	≤ 40
360N	White Liquor Tank	≤ 40

Table 05.1.T1Opacity Limitations (40%) for ID 05:Various Equipment

Equipment	Affected Source Description	Opacity Limit (%)
360O	Chemical Spill Collection Tank	≤ 40
360F	No.1 Mud Mix Tank	≤ 40
360H	No. 1 Mud Lime Tank	≤ 40

Table 05.2.T1Opacity Limitations (20%) for ID 05:Various Equipment

Equipment	Affected Source Description	Opacity Limit (%)
361A	No. 2 Lime Mud Pressure Filter	≤ 20
361B	No. 2 Precoat Filter	≤ 20
361C	No. 2 White Liquor Pressure Filter	≤ 20
361D	No. 2 Dregs Precoat Filter	≤ 20
361E	No. 2 Causticizer Tanks (4)	≤ 20
361G	No. 2 Green Liquor Clarifier	≤ 20
361H	No.2 Mud Mix Tank	≤ 20
361I	No. 2 Lime Mud Tanks	≤ 20

≤ = Less than or equal to

Testing: Not Required

Monitoring/Record Keeping/Reporting/Other: Not Required. This equipment processes and/or stores var ious pulping process liquors that normally have no potential visible emissions.

05.2	371A 372A	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No. 1 Lime Kiln (371A), •No. 2 Lime Kiln (372A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.):

Conditions For Unit ID 05 – Recausticizing

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			□ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries (SC Std. 4)}]* The opacity for the affected sources shall not exceed 20 percent. *[SC Reg. 61-62.5, Std. 4, Section III]* **Testing**: Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): Continuous Parameter Monitoring for Opacity: Affected Source: No. 1 Lime Kiln Scrubber [371A]-** The continuous parametric monitoring system (CPMS) used for compliance with NESHAP 40 Subpart MM (MACT) MM will be used to show reasonable assurance of compliance with the opacity limitations for the affected source. Under the authority of §63.453(m) and §63.8(f), the owner or operator has been granted approval the use of scrubber liquid flow and supply pressure as alternative monitoring for 40 CFR 63, Subpart S (MACT S). Scrubber liquid flow and supply pressure will be used as indicator for Opacity. All applicable MACT MM calibration , operation, sampling frequency, averaging time, data reduction, record keeping, and operation and maintenance requirements for the CPMS will apply for the use of the CPMS for SC Std. 4 Opacity monitoring. The sampling frequency and averaging time for the monitoring parameters are listed in Table 05.2.T1 below. *[SC Reg. 61-62.70(6)(3)(i)(A) {Streamlining}]* **Table 05.2.T1 No. 1 Lime Kiln TV Parameter Monitoring for Scrubber 371A** **Opacity Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** **Monitoring:** (SC Std. 4) □ Scrubber liquid flow CPMS □ Scrubber supply pressure CPMS | **Frequency**: Flow and pressure at least once every 15 minutes **Monitor Requirements:** □ NESHAP 40 CFR 63.864(e)10), §63.8 □ Approved alternative MACT MM monitoring | **Averaging**: 3- hour averages Operational ranges for the monitored parameters have been established to indicate proper operation of the control devices (See ATTACHMENT H, Table H-1. These operational ranges for the monitored parameters were derived from stack test data, vendor information, visual inspection, and operational history, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. All three-hour averages that are outside of the established ranges will be considered as reportable exceedances of parameter operating ranges. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken shall be recorded and kept on site. Reports of variances from established parameters and appropriate corrective action taken during the reporting period shall be submitted to the Bureau semiannually. If there are operating parameter exceedances during the reporting period, such information shall be stated in the report. **(B): Continuous Opacity Monitoring: Affected Source: No 2 Lime Kiln ESP [372A]** The opacity measurements from the continuous opacity monitoring system (COMS) used for compliance with NESHAP 40 CFR 63, Subpart MM (MACT MM), will also be used

Conditions For Unit ID 05 – Recausticizing			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			as a direct indicator for showing reasonable co mpliance with SC Std. 4 Opacity requirements for the affected source. All applicable MACT MM QA/QC, calibration, sampling frequency, averaging time, data reduction, record keeping, and operation and maintenance requirements for the COMS will apply for the use of the COMS for SC Std. 4 Opacity monitoring All six-minute averages for opacity that are above the applicable SC Std. 4 Opacity limitation will be considered reportable exceedances. Semiannual reports including any variances from established parame ters and appropriate corrective action taken shall be submitted to the Bureau. The report shall include the following minimum information: □ All integrated six minute opacity measurements for periods during which the applicable provisions of SC Regulation 61-62.5, Standard 4 or NSPS Subpart BB have been exceeded, together with their nature, cause, and corrective action taken. □ For periods of monitoring system malfunction: i) The date and time identifying each period during which the monitoring system was inoperative, except for zero and span checks. ii) The nature of monitoring system repairs or adjustments. iii) Proof of opacity monitoring system performance if required by the Bureau after repairs or adjustments have been made. □ Records of lime kiln or lime kiln control device system repairs or adjustments made to correct violations of the provisions of SC Regulation 61-62.5, Std. 4. □ Excluding unit startup and shutdown, if the average of ten consecutive-6minute averages exceeds 20 %, the owner or operato r shall, as appropriate, initiate an inspection of the control equipment and/or the COMS system and make the necessary repairs. If there are no excess emissions during the reporting period, such information shall be stated in the report.
05.3	360C 361F 371C	•Opacity •PM •*SC Std. 4* •*CAM*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Green Liquor Slaker (360C), •No. 2 Green Liquor Slaker (361F), •Fres Lime System (371C) **Opacity Limitations:** The af fected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 4* {Emissions from Process Industries*} (SC Std. 4)]* □ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)](371C only)* Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affect sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affect sources. As such the affect sources must not exceed the opacity limitations listed in Tab 05.3.T1 below: *[SC Reg. 61-62.5, Sec. XI(A) and (B)]* **Table 05.3.T1 Opacity Limitations for 360C, 361F, and 371C**

Conditions For Unit ID 05 – Recausticizing

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions

Equipment	Opacity Limit (%)	Applicable Regulation
360C	≤ 40	SC Std. 4
361F	≤ 20	SC Std. 4
371C	≤ 40	SC Std. 4

≤ = less than or equal to

Particulate Matter PM) Limitations: The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.):
- *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];*
- *[SC Reg. 61-62.5, Standard No. 7 {PSD}(SC Std. 7)}]*
- *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)] [371C]*

PM emissions shall be limited to the rate specified by use ofthe following equations: for process weight rates less than or equal to 30 tons per hour ($E = 4.10P^{0.67}$) and for process weight rates greater than 30 tons per hour ($E = 55.0P^{0.11} - 40$) where E = the allowable emission rate in pounds per hour and P = proce ss weight rate in tons per hour. The affected sources are also subject to SC Regulation 61 -62.5, Standard No. 7 (SC Std. 7) prevention of significant deterioration (PSD) best available control technology (BACT) PM limitations. All applicable requirementsof both SC Std. 4 and SC Std. 7 must be met As such, the allowable PM emissions limit for the affected sources is limited to the amount shown in table 05.3.T2 below (applicable process weight rates shown for SC Std 4 limits) : *[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]*

Table 05.3.T2 PM Limitations for ID 05:Various Equipment

Equipment	PM Limit	Process Weight Rate for Limit Calculation (tph)	Applicable Regulation
360C	≤ 27.5 lb/hr	17.12	SC Std. 4
360C	≤ 2 lb/hr	N/A	SC Std. 7 (PSD)
360C	≤ 9 tpy	N/A	SC Std. 7 (PSD)
361F	≤ 27.5 lb/hr	17.12	SC Std. 4
361F	≤ 2 lb/hr	N/A	SC Std. 7 (PSD)
361F	≤ 9 tpy	N/A	SC Std. 7 (PSD)
371C	≤ 25.2 lb/hr	15.1	SC Std. 4
371C	≤ 22.2 lb/hr	N/A	SC Std. 7 (PSD)
371C	≤ 25 tpy	N/A	SC Std. 7 (PSD)

≤ = Less than or equal to
lb/hr = pounds per hour
tph = tons per hour
tpy = tons per year

Testing:
(A): Periodic Testing/Monitoring: Affected Source: No. 1 and No. 2 Green Liquor Slakers [360C; 361F]: Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable SC Std. 4 and SC Std. 7 PM emission limit for the affected sources (360C and 361F). Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Se ction IV and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation61-62.1, Section IV - Source Tests and 61 -62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as

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			appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stac tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. **(B): Affected Source: Fresh Lime System [371C]:** Testing not required. **Monitoring/Record Keeping/Reporting/Other:** **(A): Periodic Monitoring: Affected Source: No. 1 and No. 2 Green Liquor Slakers [360C; 361F]** -Source testing schedule used for periodic compliance monitoring. (See Testing above). **(B): Compliance Assurance Monitoring (CAM) for PM:Affected Source Fresh Lime System Baghouse [371C]** -The affected source is subject to 40 CFR 64, Compliance Assurance Monitoring (CAM) and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64 for the baghouse for the Fresh Lime System, the C AM indicator for PM will be baghouse pressure drop as measured by pressure drop indicator, which will be used to provide reasonable assurance of continuing compliance with applicable SC Std. 4 and SC Std. 7 PM limits. The owner or operator shall continue to operate and maintain a pressure drop measuring instrument at appropriate indicator measuring instrument location as the measurement approach. To meet the requirements of 40 CFR 64 the owner or operator shall maintain the parameters and indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate)] in table 05.3.T3 below well as tak corrective action based on the defined excursion(s) shown in ATTACHMENT H, Table J 1. [§64.6(c)(1)(iii) and 64.3(b)] **Table 05.3.T3 Fresh Lime System CAM Parameter Monitoring for Baghouse 371C** **PM Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** **Monitoring:** (SC Std. 4 and SC Std. 7) Baghouse(s) Pressure Drop Indicator **Data collection**: Manual or computer record keeping | **Frequency**: At least once per day while pneumatically unloading lime to silo **Monitor requirements:** Installed to provide representative data Develop operation maintenance, and QA/QC control and assurance practices to ensure continuing validity of data. | **Averaging**: No averaging Operational ranges for the monitored CAM indicator has been established for excursions indicate proper operation of the control devices (See ATTACHMENT H, Table H -1). These operational ranges for the monitored parameters were derived from stack test data, vendor information, and operational history, which demonstrate the proper operation of tl equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air

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			Quality for approval. Upon detecting a CAM excursion (any pressure drop reading outside the estab lished excursion range), the owner or operator shall restore operation of the pollutant -specific emissions unit (including the control device and associated capture system) to its normal usual manner of operation as expeditiously as practicable in accor dance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recu rrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). A semiannual report for monitoring shall include, at a minimum, the information required under §70.6(a)(3)(iii) and the following information as applicable: □ Summary information of the number, duration and cause (including unknown cause, if applicable) of excursion and exceedances, as applicable, and the corrective actions taken □ Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable) If required by the Department pursuant to §64.8, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summa report documentation that the implementation of the plan has been completed and reduce the likelihood of similar levels of excursions and/or exceedances occurring. The owner or operator shall maintain records of monitoring data, monitor performance data, corrective action, and quality improvement plans. **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected sources (360C, 361F, and 371C).
05.4	371A	•PM •*SC Std. 4* •*SC Std. 7* •*MACT MM* •*CAM*	**Limits/Standards [State Only: No] :** The following are affecte d source(s) for this condition: •No. 1 Lime Kiln (371A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)* □ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* □ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* □ *[NESHAP 40 CFR 63, Subparts A {General Provision s); MM { National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills, and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* □ *[40 CFR 64 {Compliance Assurance Monitoring} (CAM)]* The affected source is subject to SC Std. 4, NSPS BB, MACT MM, and SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT)

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particulate matter (PM) limitations as shown Table 05.4.T1 below*[SC Reg. 61-62.5, Std. 4, Section III, NSPS 40 CFR 60.282(a)(3); NESHAP 40 CFR 63.862(a)(1)(ii)]*

Table 05.4.T1 PM Limitations for ID 05:371A		
PM Limit	**PM Units**	**Applicable Regulation**
≤ 1.0	lb/T EADUBP	SC Std. 4
≤ 0.066	gr/dscf @ 10% O_2 (on gas)	NSPS BB
≤ 0.13	gr/dscf @ 10% O_2 (on oil)	NSPS BB
≤ 0.13	gr/dscf @ 10% O_2	SC Std. 7 (PSD)
≤ 135	tpy	SC Std. 7 (PSD)
≤ 0.13 [1]	gr/dscf @ 10% O_2	MACT MM

lb/T ETADUBP = pounds per equivalent ton of air dried unbleached pulp
gr/dscf@10% O2 = grains per dry standard cubic foot corrected to 10 percent Oxygen
tpy = tons per year
≤ = less than or equal to
Note 1 MACT MM Bubble limit

See MACT conditions for more specific requirements.

Testing: Compliance with the PM emission limits shall be demonstrated through source testing once every two years in accordance with SC Regulation 61 -62.1, Section IV - Source Tests and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Department approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the require test protocol. *[SC Reg. 61-62.5, Std. 4, Section XII(A)]*

Monitoring/Record Keeping/Reporting/Other:
(A): MACT MM Monitoring - See MACT Conditions in Part 7.A of this permit for requirements.
(B): Compliance Assurance Monitoring (CAM) for PM -This source is subject to *40 CFR 64*, CAM and shall comply with all applicable provisionsThe facility will utilize the continuous parametric monitoring system (CPMS) for scrubber operating parameters use for monitoring requirements of MACT MM, which is considered by the Bureau as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for reasonable assurance of continuing compliance with the PM limitations of SC Std. 4, SC Std. 7, and NSPS BB.

To meet the requirements of 40 CFR 64 the owner or operator shall use presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) and maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the Table 05.4.T2 below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT H, Table H-1. [§64.6(c)(1)(iii) and 64.3(b)]

Table 05.4.T2 No. 1 Lime Kiln CAM Scrubber Monitoring for Scrubber 371A	
PM Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
CAM Indicators	**Frequency:** Minimum of one cycle of

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Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			☐ Water pressure to high pressure scrubber nozzles CPMS ☐ Liquid flow to high pressure scrubber nozzles [1] CPMS **Data collection:** Computer system and/or manual record keeping — sampling and analyzing every successive 15-minute **Monitor Requirements:** ☐ NESHAP 40 CFR 63.8; §63.864(e)(10)(2) ☐ Scrubber water flow certified by the manufacturer to be accurate within ±5 percent of the design flow rate — **Averaging:** 3- hour averages Notes: 1. The use of water pressure to the scrubber high pressures scrubber nozzles as alternative NSPS BB an MACT MM has been approved by the EPA and SC DHEC as alternative monitoring for scrubber pressure drop monitoring Operational excursion ranges for the CAM indicators have been established to indicate proper operation of the control devices (See ATTACHMENT H, Table H -10). These operational ranges for the monitored parame ters were derived from stack test data and MACT MM range limitations, which demonstrate the proper operation of the equipment compliance. The facility shall maintain previously established operational ranges for thes monitored parameters. The operati ng ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Upon detecting an CAM excursion (When any 3-hour average is outside the established scrubbe CAM indicator ranges), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. For CAM, reporting shall included indications of SC Std. excursions and exceedances. *[40 CFR 63.864; §63.866; §63.867; §63.8; §63.10]* **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected source (371A).
05.5	372A	•PM •*SC Std. 4* •*SC Std. 7* •*MACT MM* •*CAM*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: • No. 2 Lime Kiln (372A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ☐ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)]* ☐ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* ☐ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]*

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Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			❑ *[NESHAP 40 CFR 63, Subparts A {General Provisions); MM { National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources A Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills, and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* ❑ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)]* The affected source is subject to SC Std. 4, NSPS BB, MACT MM, and SC Std. 7 prevention of significant deterioration best available control technology (SC PSD BACT) particulate matter (PM) limitations as shown Table 05.5.T1 below[*SC Reg. 61-62.5, Std. 4, Section III, NSPS 40 CFR 60.282(a)(3); NESHAP 40 CFR 63.862(a)(1)(ii)]*

Table 05.5.T1 PM Limitations for ID 05:372A

PM Limit	PM Units	Applicable Regulation
≤ 1.0	lb/T EADUBP	SC Std. 4
≤ 0.066	gr/dscf @ 10% O_2 (on gas)	NSPS BB
≤ 0.13	gr/dscf @ 10% O_2 (on oil)	NSPS BB
≤ 0.10	gr/dscf @ 10% O_2	SC Std. 7 (PSD)
≤ 90	tpy	SC Std. 7 (PSD)
≤ 0.10 [1]	gr/dscf @ 10% O_2	MACT MM

lb/T ETADUBP = pounds per equivalent ton of air dried unbleached pulp
gr/dscf@10% O_2 = grains per dry standard cubic foot corrected to 10 percent Oxygen
tpy = tons per year
≤ = less than or equal to
Note 1. MACT MM bubble Limit

See MACT conditions for more specific requirements,

Testing: [SC Std. 4 Special Condition] Pursuant to the options allowed by South Carolina Regulation 61-62.4 Standard No. 4, Section XI, A, compliance with PM emissio limitations will be demonstrated through source testing once every four years instead on once every two years in accordance with the requirements of this special condition. Testing shall be inaccordance with SC Regulation 61-62.1, Section IV - Source Tests and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol[*SC Reg. 61-62.5, Std. 4, Section XII(A)]*

If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stac tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shownby two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. The Bureau may modify, suspend, and/or remove this special condition at any time.

Monitoring/Record Keeping/Reporting/Other:
(A): MACT MM Monitoring - See MACT Conditions in Part 7.A of this permit for requirements.

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Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			(B): Compliance Assurance Monitoring (CAM) for PM-This source is subject to 40 CFR 64, CAM and shall comply with all applicable provisions. The facility shall utilize a continuous opacity monitoring system (COMS) used for PM monitoring requirements of NESHAP 40 CFR 63, Subparts A and MM, which is considered by the Bureau as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for reasonable assurance of continuing compliance with the limitations of South Carolina Standard 4, NSPS 40 CFR Subpart BB, South Carolina Standard 7 PSD BACT. To meet the requirements of 40 CFR 64 the owner or operator shall use presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) and maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the Table 05.5.T2 below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT H, Table H-1. [§64.6(c)(1)(iii) and 64.3(b)]

Table 05.5.T2 No. 2 Lime Kiln CAM Parameter Monitoring for ESP 372A	
PM Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
CAM Indicator: (SC Std. 4, SC Std. 7, NSPS BB) ☐ COMS (Opacity) **Data collection**: Computer system and manual record keeping	**Frequency:** Minimum of one cycle of sampling and analyzing every successive 10-second period
Monitor requirements: NESHAP 40 CFR 63.864(d), §63.8	**Averaging:** One Cycle of data averaged each successive 6-minute period

Operational ranges for the monitored CAM indicator have been established to indicate proper operation of the control devices (See ATTACHMENT H, Table H-10. These operational ranges for the monitored parameters were derived from stack test data and MACT MM range limitations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval.

Upon detecting an CAM excursion (When the average of any ten (10) consecutive 6-minute averages are greater than 20% opacity) the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).

The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. For CAM, reporting shall included indications of SC Std. 4 excursions. *[NESHAP 40 CFR 63.864(d); §63.864(d)(3); §63.864(d)(4); §63.8; §63.10(c)]*

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Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			(C): PSD Annual Emission Monitoring -See Facility Wide Condition FW..3 (Part 5, Section D) for record keeping and reporting requirements for the affected source (372A).
05.6	371A 372A	•SO_2 •*SC Std. 7*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No. 1 Lime Kiln (371A), •No. 2 Lime Kiln (372A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* The affected sources are subject to prevention of significant deterioration (PSD) best available control technology (BACT) Sulfur Dioxide (SO_2) limitations established by SC Std. 7. As such, the affect sources must not exceed the PM limitations listed in Table 05.6.T1 below: **Table 05.6.T1 SO_2 Limitations for ID 05:371A and 372A** **Equipment** / **SO_2 limit** / **SO_2 Units** 371A / ≤ 0.2 / lb/ADTP 371A / ≤ 31 / tpy 372A / ≤ 0.2 / lb/ADTP 372A / ≤ 40 / tpy ≤ = less than or equal to lb/ADTP = pounds per air dired ton of pulp tpy = tons per year **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): Fuel Use-**The lime kilns are permitted to burn only the following fuels: **Table 05.6.T2 Fuel Use Limitations for ID 05:371A and 372A** **Permitted Fuel** / **Comment** **No. 1 Lime Kiln:** No. 2 fuel oil No. 5 fuel oil No. 6 fuel oil Spec oil / Spec Oil Definition (See Condition 5.10) **Table 05.6.T2 Fuel Use Limitations for ID 05:371A and 372A** **Permitted Fuel** / **Comment** **No. 2 Lime Kiln:** No. 2 fuel oil No. 5 fuel oil No. 6 fuel oil Spec oil / Spec Oil Definition (See Condition 5.10) Rectified methanol / See Condition 5.11 for limitations The use of any other substances as fuel is prohibited without prior written approval from the Bureau. **(B): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected sources (371A

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Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			and 372A).
05.7	371A	•NO_X •CO •*SC Std. 7*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 Lime Kiln (371A) The affected source(s) are subject to all ap plicable limits and requirements of the following regulation(s) (reg.): *[SC Reg. 61-62.1, Standard No. 7 {PSD} (SC Std. 7)]* The affected sources are subject to prevention of significant deterioration (PSD) best available control technology (BACT) Nitrogen Oxides (NOx) and Carbon Monixide (CO) limitations established by SC Std. 7. As such, the affect sources must not exceed the PSD BACT limitations listed in Table 05.7.T1 below: **Table 05.7.T1 NO_X and CO Limitations for ID 05: 371A** **Pollutant** | **Pollutant Limit** | **Limit Units** NOx | ≤ 0.85 | lb/10^6 Btu NOx | ≤ 205 | tpy CO | ≤ 10.0 | lb/ADTP CO | ≤ 1553 | tpy ≤ = less than or equal to lb/10^6 Btu = pounds per million British thermal units heat input lb/ADTP = pounds per air dried ton of pulp tpy = tons per year **Testing:** Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable SC Std. 7 emission limits for the affected source. Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 7E will be used to show compliance for NOx and EPA Method 10 will be used to show compliance for CO. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. Compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. **Monitoring/Record Keeping/Reporting/Other:** **(A): Periodic Monitoring:** Source testing schedule used for periodic compliance monitoring. (See Testing above). **(B): Fuel Use**-See Condition 05.6 **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected source (371A).

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Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
05.8	372A	•NO_X •CO •VOC •*SC Std. 7*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No. 2 Lime Kiln (372A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): *[SC Reg. 61-62.1, Standard No. 7 {PSD} (SC Std. 7)]* The affected sources are subject to prevention of significant deterioration (PSD) best available control technology (BACT) Nitrogen Oxides (NOx), Carbon Monixide (CO), and volatile organic compounds (VOC) limitations established by SC Std. 7. As such, the affect sources must not exceed the PSD BACT limitations listed in Table 05.8.T1 below: **Table 05.8.T1 NO_X, CO, and VOC Limits for ID 05: 371A** **Pollutant** / **Pollutant Limit** / **Limit Units** NOx / ≤ 0.85 / lb/10^6 Btu NOx / ≤ 241 / tpy CO / ≤ 0.1 / lb/ADTP CO / ≤ 20 / tpy VOC / ≤ 1.6 / lb/T CaO VOC / ≤ 78 / tpy ≤ = less than or equal to lb/10^6 Btu = pounds per million British thermal units heat input lb/ADTP = pounds per air dried ton of pulp lb/T CaO = pounds per ton of Calcium Oxide tpy = tons per year **Testing:** Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable SC Std. 7 emission limits for the affected source. Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 7-7E will be used to show compliance for NOx; EPA Method 10 will be used to show compliance for CO; and EPA Method 25/25A will be used to show compliance for VOC. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. Compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. **Monitoring/Record Keeping/Reporting/Other:** **(A): Periodic Monitoring:** Source testing schedule used for periodic compliance monitoring. (See Testing above). **(B): Fuel Use**-See Condition 5.6 **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D)for record keeping and reporting requirements for the affected source (372A).

Conditions For Unit ID 05 – Recausticizing

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
05.9	371A 372A	•TRS •*NSPS BB* •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Lime Kiln (371A), •No. 2 Lime Kiln (372A) The affecte d source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* ❑ *[SC Reg. 61-62.5, Standard No. 7 (SC Std. 7)]* The affected sources are subject applicable requirements of NSPS BB and SC Std. 7 Best available control technology (SC PSD BACT) for total reduced sulfur (TRS) limitations as shown in the table below: *[NSPS 40 CFR 60.283(a)(2); §60.283(a)(4); §60.283(a)(5)]* **Table 05.9.T1 TRS Limitations for ID 05:371A and 372A** **Equipment** / **TRS Limit** / **TRS Units** / **Applicable Regulation** 371A / ≤ 8 / ppmv@10%O_2(dry weight) / NSPS BB 371A / ≤ 8 / ppmv@10%O_2(dry weight) / SC Std. 7 (PSD) 371A / ≤ 3 / tpy / SC Std. 7 (PSD) 372A / ≤ 8 / ppmv@10%O_2(dry weight) / NSPS BB 372A / ≤ 8 / ppmv@10%O_2(dry weight) / SC Std. 7 (PSD) 372A / ≤ 4.5 / tpy / SC Std. 7 (PSD) ppmv@10%O_2(dry weight) = parts per million volume basis at 10 percent Oxygen (dry weight) lbs/T BLS(dry weight) = pounds per ton of black liquid solids (dry weight) tpy = tons per year **Testing:** Not Required **(A): TRS Continuous Monitoring** -The owner or operator shall install, calibrate, maintain and operate continuous emissions monit oring system (CEMS) to monitor and record the concentration of TRS emissions on a dry basis and the percent oxygen by volume on a dry basis in the gases discharged into the atmosphere for each lime kiln. The CEMS must be calibrated, maintained, and operat ed in accordance with the applicable requirements of 40 CFR 60.284 (f), 40 CFR 60.13, and Performance Specification 3 and of Appendix B of 40 CFR, Part 60. The owner or operator shall calculate and record on daily 12-hour average TRS concentrations and O_2 concentrations for the two consecutive periods of each operating day. Excess emissions are as follows: *[NSPS 40 CFR 60.284(a)(2)]* ❑ Excess emissions are defined as 12-hour averages of TRS concentrations above 8 ppmv @ 10% O_2 [calculated in accordance with 40 CFR 60.284(c)(1)-(c)(4)]. *[NSPS 40 CFR 60.284(c); §60.284(d)]* The Bureau will not consider periods of excess emissions to be indicative of a violation of 40 CFR 60, Subpart BB) if: ❑ The number of 12 hour exceedances from lime kilns is less than or equal to 2% of the total number of contiguous 12 hour periods in a quarter (excluding periods of startup, shutdown, or malfunction and periods when the lime kiln is not operating). ❑ The Bureau determines that the affected equipment, including air p ollution control

Conditions For Unit ID 05 – Recausticizing			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			equipment, is maintained and operated in a manner which is consistent with good air pollution control practice for minimizing emissions during periods of excess emissions. *[NSPS 40 CFR; §60.284(e)]* **(B): NSPS Reports -**The owner or operator shall submit a semiannual Excess emissions and monitoring systems performance report and/or a summary report for the affected sources. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted. *[NSPS 40 CFR 60.7(c); §60.7(d)]* Reports shall include the information required by §60.7(c) and §60.7(d) and shall be submitted to the Bureau. If there are no excess emissions during the reporting period, the report should state such information.
05.10	371A 372A	•Used Oil •*SC Std. 3*	**Limits/Standards [State Only: Yes]:** The following are affected source(s) for this condition: •No. 1 Lime Kiln (371A), •No. 2 Lime Kiln (372A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)]* The facility is subject to applicable requirements of SC Standard 3 when burning used oil. The affected sources are allowed to burn specification used oil (spec oil) that is purchased or generated on-site. Spec oil is oil that has been refined from crude or synthetic oil and as a result of use, storage, or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties, but which may be suitable for further use and may be economically recyclable. This also includes absorbent material contaminated with used oil such as oily rags or absorbent blankets. Spec oil burned must meet the following specifications in Table 5.10.T1 below. This is a SC state only regulation.

Table 05.10.T1-Standard 3 Specification Oil Limits for ID 05:371A and 372A

Pollutant	Specification Oil Limit
arsenic	5 parts per million (ppm) maximum
cadmium	2 parts per million (ppm) maximum
chromium	10 parts per million (ppm) maximum
lead	100 parts per million (ppm) maximum

Table 05.10.T1-Standard 3 Specification Oil Limits for ID 05:371A and 372A

Pollutant	Specification Oil Limit
Nickel	120 parts per million (ppm) maximum
Total halogens	4000 parts per million (ppm) maximum
Flash point	100 ^{O} F minimum

ppm = parts per million

Conditions For Unit ID 05 – Recausticizing			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			Used oil containing more than 1000 parts per million total halogens is presumed to be a hazardous waste. The burden of proof that this is not true rests with the user. For these emission limitation , the procedures in South Carolina Regulations 61-62.5, Standard 3, Section V , A and H shall be used to define and quantify compliance with requirements for these units.[*SC Reg. 61-62.1, Section I(91) {Definitions}; SC Reg. 6362.5, Std. 3, Section I]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** The affected sources are permitted to burn spec oil, which is subject to SC Std3 requirements. AFuel oil supplier certification shall be obtained for each batch of spec oil received and stored on site. Each batch of spec oil that is to be burned must be analyzed for the following: □ Classified as hazardous or non-hazardous □ Spec Oil or non Spec Oil □ Heat value; total halogen; percent nitrogen; percent sulfur Each batch of spec oil that is to be burned must be characterized to determine if it is hazardous or non-hazardous and to identify by analysis or special knowledge of the oil (MSDS, waste profiles, etc.). For each batch of used oil that is generated on site and is to be burned on site, an annual analysis (from each source that has generated the used oil) shall be performed for the following: □ Classified as hazardous or non-hazardous □ Spec Oil or non Spec Oil □ Heat value; total halogen; percent nitrogen; percent sulfur Records of all analyses shall be maintained on site. Semiannual reports, including any variances from established parameters during the reporting period shall be submitted to the Bureau. Analytical methods shall be in accordance with South Carolina Regulation 61 - 62.5, Standard 3, Section V(H), unless alternative methods are approved by the Manager of Technical Management , Bureau of Air Quality. Records of all analyses shall be maintained and annual reports of the analysis (as required above) shall be submitted to Bureau. *[SC Reg. 61-62.5, Std. 3, Section V]*
05.11	372A	•Metals and HCl •*SC Std. 3*	**Limits/Standards [State Only: Yes] :** The following are affected source(s) for this condition: •No. 2 Lime Kiln (372A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)* The affected source is permitted to burn rectified methanol and is subject to all applicable requirements of SC Std. 3 when burning this non -virgin fuel. When burning rectified methanol the limitations listed in Table 05.11.T1 below must be met. This is a SC state only regulation. *[SC Reg. 61-62.5, Std. 3, Sec. III(J)]*

Table 05.11T1 Waste Burning Limitations for ID 05: 372A	
Pollutant	**Pollutant Limit [1]**
nickel (Ni)	$\leq$ 6.0 x 10^{-3} lb/10^6 Btu total heat input
cadmium (Cd)	$\leq$ 1.0 x 10^{-4} lb / 10^6 Btu total heat input
chromium (Cr)	$\leq$ 7.4 x 10^{-4} lb / 10^6 Btu total heat input

Conditions For Unit ID 05 – Recausticizing			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			arsenic (As) ≤ 1.7 x 10^{-3} lb / 10^6 Btu total heat input lead (Pb) ≤ 5.0 x 10^{-3} lb / 10^6 Btu total heat input hydrochloric acid (HCl) ≤ 0.45 lb / 10^6 Btu total heat input ≤ = less than or equal to Notes: 1. The total heat input value shall include the Btu from the SC Standard 3 regulated fuel and virgin f used for production **Testing:** An initial analysis of the rectif ied methanol was required. The analysis was completed and approved for the following: □ Classify all waste burned as either hazardous or non-hazardous. □ Each waste stream and each waste batch/shipment that is to be burned shall be identified by waste analys is or special knowledge of the waste for those air toxic compounds identified in SC Regulation 61-62.5, Standard 8. □ Analysis to determine heat value; total halogen; percent nitrogen; percent sulfur, percent ash □ Analysis to determine total metals, HCl and BTU content No other analysis is required because the calculated values were less than or equal to 50% of the emission standards. **Monitoring/Record Keeping/Reporting/Other:** Not required. On-site rectified methanol has been certified by initial fuel testing to meet SC. Std. 3 requirements.
05.12	371A 372A	•HAP (Metals) •*MACT MM*	This facility, including the affected sources for this emission unit, is subject to all applicable limits and requirements of NESHAP 40 CFR 63, Subparts A {General Provisions} and MM {National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand -Alone Semichemical Pulp Mills} (MACT MM). See Part 7.0 for limitations, notification, testing, monitoring, inspectio n, SSM, record keeping, and reporting requirements of MACT MM.
05.13	371A 372A	•Facility wide NOx •*SC Agreement*	The limitations and requirements for the facility wide nitrogen oxides (NO_x) emissions for affected sources, including these sources, are listed in Facility Wide Condition FW.2 (Part 5, Section D).

Table 5.13- Unit ID 06 – Chemical Recovery				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
354A	1,600,000 Tons BLS/yr Salt Cake Recovery Plant	5/6/96	N/A	354AV
381A	540,000 Tons BLS/yr No.1 Recovery Furnace	2/25/82	381A	381ASCE
381B	No. 1 Scrubber Recirculation Tank	2/25/82	N/A	381BV
381C	540,000 Tons BLS/yr No.1 Smelt Dissolving Tank	2/25/82	381C	381CSCE
382A	1,050,000 Tons BLS/yr No.2 Recovery Furnace	7/31/89	382A	382ASCE
382B	1,050,000 Tons BLS/yr No.2 Smelt Dissolving Tank	7/31/89	382B	382BSCE
382C	No. 2 Scrubber Recirculation Tank	7/31/89	N/A	382CV

***Table 5.14*-Control Device(s) For Unit ID 06 – Chemical Recovery**

Control Device ID	Description	Installation Date/ Modification Date	Pollutant Controlled
381A	No. 1 Recovery Furnace ESP	Feb 25, 1982	PM/PM_{10}
381C	No.1 Smelt Dissolving Tank Scrubber	Feb 25, 1982 (Jan, 1993)	PM/PM_{10} TRS
382A	No. 2 Recovery Furnace ESP	July 31, 1989	PM/PM_{10}
382B	No.2 Smelt Dissolving Tank Scrubber	July 31, 1989 (Nov, 1995)	PM/PM_{10} TRS

Conditions For Unit ID 06 – Chemical Recovery

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
06.1	381B 354A 382C	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Scrubber Recirculation Tank (381B), •No. 2 Scrubber Recirculation Tank (382C), •Salt Cake Recovery Plant (354A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5 Standard No. 4 {Emissions from Process Industries}{SC Std. 4)}]* Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affected sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. As such, Opacity limitations for the affected sources are shown in the Table 06.1.T1 below: *[SC Reg. 61-62.5, Std. 4, Section IX(A) and (B)]* **Table 06.1.T1 Opacity Limitations for ID 06: Various Equipment** Equipment: 381B — Opacity Limit (%): ≤ 40 Equipment: 382C — Opacity Limit (%): ≤ 20 Equipment: 354A — Opacity Limit (%): ≤ 20 ≤ = Less than or equal to **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** Not Required. This equipment processes and/or stores various pulping process liquors and chemicals.
06.2	381A 382A	•Opacity •*SC Std. 4* •*NSPS BB*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Recovery Furnace (381A), •No. 2 Recovery Furnace (382A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Visible emissions from Kraft Pulp and Paper Manufacturing (SC Std. 4)];* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* The affected sources shall meet the opacity limits of SC Std. 4 and NSPS BB as shown in the table 06.2.T1 below: *[SC Reg. 61-62.5, Std. 4, Section III; 40 CFR 60.282(a)(1)(ii)]* **Table 06.2.T1 Opacity Limitations for ID 06: 381A and 382A** Equipment | Opacity Limit (%) | Applicable Regulations

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
				381A	≤ 40	SC Std. 4
				381A	≤ 35	NSPS BB
				382A	≤ 40	SC Std. 4
				382A	≤ 35	NSPS BB

≤ = Less than or equal to

Testing: Not Required

Monitoring/Record Keeping/Reporting/Other:
(A): Continuous Opacity Monitoring-The opacity measurements from the continuous opacity monitoring system (COMS) used for compliance with NESHAP 40 CFR 63, Subpart MM (MACT MM) and NSPS Subpart BB, will also be used along as a direct indicator for showing reasonable compliance with SC Std. 4 and NSPS BB Opacity requirements for the affected sources. All applicable MACT MM QA/QC, calibration, sampling frequency, averaging time, data reduction, record keeping, and operation and maintenance requirements for the COMS will apply for the use of the COMS for SC Std. Opacity monitoring. *[SC Reg. 61-62.70(6)(3)(i)(A) {Streamlining}; NESHAP 40 CFR 63.864(d); §63.864(d)(3); §63.864(d)(4); §63.8; §63.10(c)]*

All six-minute averages for opacity that are above the applicable Opacity limitation will b considered reportable exceeda nces. Semiannual reports including any variances from established parameters and appropriate corrective action taken shall be submitted to the Bureau. The report shall include the following minimum information:

- All integrated six minute opacity measurements for periods during which the applicable provisions of SC Regulation 61 -62.5, Standard 4 or NSPS Subpart BB have been exceeded, together with their nature, cause, and corrective action taken.
- For periods of monitoring system malfunction:

  i) The date and time identifying each period during which the monitoring system was inoperative, except for zero and span checks.

  ii) The nature of monitoring system repairs or adjustments.

  iii) Proof of opacity monitoring system performance if required by the Bureau after repairs or adjustments have been made.

- Records of recovery boiler or recovery boiler control device, lime kiln or lime kiln contr device system repairs or adjustments made to correct violations of the provisions of SC Regulation 61-62.5, Std. 4.
- Excluding unit startup and shutdown, if any average of ten consecutive 6-minute averages exceeds 20 %, the owner or operator shall, as appropriate, initiate an inspection of the control equipment and/or the COMS system and make the necessary repairs.

If there are no excess emissions during the reporting period, such information shall be stated in the report.

06.3	381C 382B	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Smelt Dissolving Tank (381C), •No. 2 Smelt Dissolving Tank (382B) The affected source(s) are subject to all applicable limits and requirements of the

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			following regulation(s) (reg.): □ *[SC Reg. 61 -62.5, Standard No. 4 {Visible emissions from Kraft Pulp and Paper Manufacturing (SC Std. 4)]* The affected sources shall not exceed an opacity of 20 percent. *[SC Reg. 61-62.5, Std. 4, Section III]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other: Continuous Parameter Monitoring for Opacity-**The continuous parametric monitoring system (CPMS) used for compliance with NESHAP 40 Subpart MM (MACT) MM will be used to show reasonable assurance of compliance with the SC Std. 4 opacity limitations for the affected sources. Under the authority of §63.453(m) and §638(f), the owner or operator has been granted approval th use of scrubber liquid flow and fan operation (by amps) as alternative monitoring for 40 CFR 63, Subpart S (MACT S). Scrubber flow and fan operation will be used as indicator for Opacity. All ap plicable MACT MM calibration, operation, sampling frequency, averaging time, data reduction, record keeping, and operation and maintenance requirements for the CPMS will apply for the use of the CPMS for SC Std. 4 Opacity monitoring. The sampling frequency and averaging time for the monitoring parameters ar listed in Table 06.3.T1 below. *[SC Reg. 61-62.70(6)(3)(i)(A) {Streamlining}]* **Table 06.3.T1 Smelt Tank TV Parameter Monitoring for Scrubbers 381C and 382B** **Opacity Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** **Monitoring:** (SC Std. 4) □ Scrubber liquid flow CPMS Fan operation (using amps) CPMS | **Frequency**: At least once every 15 minutes **Monitor Requirements:** □ NESHAP 40 CFR 63.8 □ Approved alternative MACT MM monitoring | **Averaging**: 3-hour averages Operational ranges for the monitored parameters have been established to indicate proper operation of the control devices (See ATTACHMENT H, Table H-1). These operational ranges for the monitored parameters were derived from stack test data, vendor information, operational history, and visual inspections, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. All three-hour averages that are outside of the established ranges will be considered as reportable exceed ances of operating parameter ranges. Each incidence of operation outside the operational ranges, including date and time, cause, monitoring data, and corrective action taken, shall be recorded and kept on site . Reports of variances from established parameters and appropriate corrective action taken during the reporting period shall be submitted to the Bureau semiannually. If there are no excess emissions during the reporting period, such information shall be stated in the report.
06.4	381A	•PM	**Limits/Standards [State Only: No]:** The following are affected source(s) for this

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
		•*SC Std. 4* •*NSPS BB* •*MACT MM* •*CAM*	condition: • No. 1 Recovery Furnace (381A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];* ❑ *[SC Reg. 61-62.5, Standard 7 {PSD} (SC Std. 7)];* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance Fo Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* ❑ *[NESHAP 40 CFR 63, Subparts A {General Provisions); MM { National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources A Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills, and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* ❑ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)]* The affected source is subject to all of the SC Std. 4 and MACT MM particulate matter (PM) limitations as shown in Table 06.4.T1 below:*[SC Reg. 61-62.5, Std. 4, Section III; NSPS 40 CFR 60.280(a)(1)(i); NESHAP 40 CFR 63. §60.862(a)(1)(ii)]* **Table 06.4.T1 PM Limitations for ID 06: 381A** **PM Limit** / **PM Units** / **Applicable Regulation** ≤ 2.75 / lb/T EADTUBP / SC Std. 4 ≤ 0.044 / gr/dscf@8% O_2 / NSPS BB ≤ 0.044 / gr/dscf@8% O_2 / SC Std. 7 (PSD) ≤ 215 / tpy / SC Std. 7 (PSD) ≤ 0.044 [1] / gr/dscf@8% O_2 / MACT MM lb/T EADTUBP = pounds per equivalent air dried ton of unbleachedpulp gr/dscf@8% O_2 = grains per dry standard cubic foot corrected to 8 percent Oxygen lb/T BLS = pounds per ton of black liquor solids tpy = tons per year Note 1 MACT MM bubble limit (Note: See MACT Conditions in Part 7.0 for MACT MM requirements. **Testing: [SC Std. 4 Special Condition]** Pursuant to the options allowed by South Carolina Regulation 61-62.4 Standard No. 4, Section XI, A, compliance with PM emission limitations will be demonstrated through source testing once every four years instead on once every two years in accordance with the requirements of this special condition. Testing shall be inaccordance with SC Regulation 61-62.1, Section IV - Source Tests and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. *[SC Reg. 61-62.5, Std. 4, Section XII(A)]* If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stac tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. The Bureau may modify, suspend, and/or remove this special

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			condition at any time. **Monitoring/Record Keeping/Reporting/Other:** **(A): MACT MM Requirements-** (Note: See MACT Conditions in Part 7.0 for MACT MM requirements. **(B1): Compliance Assurance Monitoring (CAM) for PM-**This source is subject to 40 CFR 64, CAM (large unit) and shall comply with all applicable provisions. The facility shall utilize a continuous opacity monitoring system (COMS) used for PM monitoring requirements of MACT MM, which is considered by the Bureau as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for reasonable assurance of continuing compliance with the limitations of SC Std. 4, SC Std. 7, and NSPS BB. To meet the requirements of 40 CFR 64 the owner or operator shall use presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) and maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table 06.4.T2 below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT H, Table H-1. [§64.6(c)(1)(iii) and 64.3(b)]

Table 06.4.T2 No. 1 Recovery Furnace CAM Parameter Monitoring for ESP 381A	
PM Monitoring Method/Requirements	**Sampling Frequency**
CAM Indicator: (SC Std. 4, 7, and NSPS BB) □ COMS (Opacity)	**Frequency:** Minimum of one cycle of sampling and analyzing every successive 10-second period
Data collection: Computer system and/or manual record keeping	**Averaging:** One Cycle of data averaged each successive 6-minute period
Monitor Requirements: □ NESHAP 40 CFR 63.8; §63.864(d)	

COMS = Continuous opacity monitoring system(s)

Operational ranges for the CAM indicator have been established for CAM excursions to indicate proper operation of the control devices (See ATTACHMENT H, Table H -1). These operational ranges for the monitored parameters were derived from stack test data and MACT MM range limitations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval.

Upon detecting an excursion (When any average of ten consecutive 6-minute averages exceeds 20 %), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other tha those caused by excused startup and shutdown conditions The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. For CAM, reporting shall included indications of SC Std. 4, SC Std. 7, and NSPS BB excursions. *[NESHAP 40 CFR 63.864(d), § 63.864(d)(3), §63.864(d)(4); §63.866; §63.867; §63.8; §63.10](c)]* **(B2): Additional Large Unit CAM Monitoring Requirements** -- If the COMS data (excluding startup and shutdown as well as bad COMS data) averaged over a six (6) minute periods shows excursions over 35 % opacity for six (6) percent or more of the operating time within any quarterly period, the permittee shall perform a stack test in the following calendar quarter to demonstrate compliancewith the SC Std. 4, SC Std. 7, and the NSPS BB PM standards. The permittee shall submit and have Department approval for a compliance test protocol representative of operational conditions during the period i question as required by SC Regulation 62.1, S ection IV - "Source Tests" before conducting any tests. **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW..3 (Part 5, Section D) for record keeping and reporting requirements for the affected source (381A).
06.5	381C	•PM •*SC Std. 4* •*SC Std. 7* •*NSPS BB* •*MACT MM* •*CAM*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: • No. 1 Smelt Dissolving Tank (381C) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];* ❑ *[SC Reg. 61-62.5, Standard 7 {PSD} (SC Std. 7)];* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance Fo Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* ❑ *[NESHAP 40 CFR 63, Subparts A {General Provisions); MM { National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources A Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills, and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* ❑ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)]* The affected source is subject to all of the SC Std. 4, SC Std. 7, NSPS BB, and MACT MM particulate matter (PM) limitations as shown in Table 06.5.T1 below: *[SC Reg. 61-62.5, Std. 4, Section III; NESHAP 40 CFR 63.860; §63.861; §63.862(a); §60.862(a)(1)(i) §63.860(a)(1)(i)(A)]*

Table 06.5.T1 PM Limitations for ID 06: 381C

PM Limit	PM Units	Applicable Regulation
≤ 1.0	lb/EADTUBP	SC Std. 4
≤ 0.2	lb/T BLS (dry weight)	NSPS BB
≤ 0.2	lb/T BLS (dry weight)	SC Std. 7 (PSD)
≤ 43	tpy	SC Std. 7 (PSD)

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**

≤ 0.096 [1]	gr/dscf@full rate and cyclonic flow measurement	MACT MM

≤ = less than or equal to
lb/T EADTUBP = pounds per equivalent air dried ton of unbleached pulp
lb/T BLS fired = pounds per ton of black liquor solids fired
gr/dscf@full rate = grains per dry standard cubic foot at full rate
tpy = tons per year
Note 1 MACT MM bubble limit

(Note: See MACT Conditions in Part 7.0 for MACT MM requirements.

Testing: Compliance with the PM emission limits shall be demonstrated through source testing once every four years in accordance wi th SC Regulation 61 -62.1, Section IV - Source Tests and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. *[SC Reg. 61-62.5, Std. 4, Section XII(A)]*

Monitoring/Record Keeping/Reporting/Other:
(A): MACT MM Requirements- (Note: See MACT Conditions in Part 7.0 for MACT MM requirements.

(B): Parameter Co mpliance Assurance Monitoring (CAM) for PM -This source is subject to 40 CFR 64, CAM and shall comply with all applicable provisions The facility will utilize the continuous parametric monitoring system (CPMS) for scrubber operating parameters used for monitoring requirements of MACT MM, which is considered by the Bureau as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for reasonable assurance of continuing compliance with the limitations of SC Std. 4, NSPS BB, and SC Std. 7.Under the authority of §63.453(m) and §63.8(f), the owner or operator has been granted approval the use of scrubber liquid flow and fan operation (by amps) as alternative monitoring for 40 CFR 63, Subpart S (MACT S). Scrubber flow and fan operation will be used as indicators for PM.

To meet the requirements of 40 CFR 64 the owner or operator shall use presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) and maintain the indicator(s) [monitoring methods, sampling frequencies, data collecti on procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table 06.5.T2 below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT H, Table H-1. [§64.6(c)(1)(iii) and 64.3(b)]

Table 06.5.T2 No. 1 Smelt Tank CAM Scrubber Monitoring for Scrubber 381C	
PM Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
CAM Indicators: (SC Std. 4, SC Std. 7, NSPS BB) □ Total scrubber liquid flow at the fan and precleaner spray nozzles CPMS[1] □ Scrubber operation CPMS (by fan amperage)	**Frequency:** Minimum of one cycle of sampling and analyzing every successive 15-minute period

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			Date collection: Computer system and/or manual record keeping **Monitor requirements:** ☐ 40 CFR 63.864(e)(10), §63.8 ☐ Approved alternative MACT MM Monitoring ☐ Liquid flow certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate **Averaging:** 3- hour averages Notes: 1. The use of scrubber fan amperage and liquid flow approved as alternative NSPS BB and MACT MM monitoring for scrubber pressure drop monitoring and liquid supply pressure. Operational ranges for the CAM indicators have been established for excursions to indicate proper operation of the control devices (See ATTACHMENT H, Table H -1). These operational ranges for the monitored parameters were derived from stack test data and MACT MM range limitations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bur eau of Air Quality for approval. Upon detecting an excursion (When any 3-hour average is outside established CAM scrubber excursion ranges), the owner or operator shall restore operation of the pollutant -specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown o r malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). The owner or operator shal l follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of MACT MM. For CAM, reporting shall included indications of SC Std. 4, SC Std. 7, and NSPS BB excursions. *[NESHAP 40 CFR 63.864(e); §63.864(e)(10); §63.864(d)(4); §63.8; §63.10(c)]* **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected source {381C).
06.6	382A	•PM •*SC Std. 4* •*SC Std. 7* •*NSPS BB* •*MACT MM* •*CAM*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 2 Recovery Furnace (382A) **Limits/Standards:** The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ☐ *[SC Regulation 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];* ☐ *[SC Regulation 61-62.5, Standard 7 {PSD} (SC Std. 7)];* ☐ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* ☐ *[NESHAP 40 CFR 63, Subparts A {General Provisions); MM { National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources A*

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills, and SC Reg. 61-62.63, Subparts A and MM (MACT MM)] *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)]* The affected source is subject to SC Std. 4 , NSPS BB, MACT MM, and SC Std. 7 prevention of significant deterioration best available control technology (SC PSD BACT) particulate matter (PM) and/or particulate matter less than 10microns (PM10) limitations as shown Table 06.6.T1below: *[SC Reg. 61 -62.5, Std. 4, Section III; NSPS 40 CFR 60.282(a)(1)(i); 40 CFR 63.862(a)(1)(ii)]*

Table 06.6.T1 PM Limitations for ID 06: 382A

PM Limit	PM Units	Applicable Regulation
≤ 2.75	lb/T EADUBP	SC Std. 4
≤ 0.044	gr/dscr@8% O_2	NSPS BB
≤ 0.030	gr/dscr@8% O_2	SC Std. 7 (PSD)
≤ 0.030	gr/dscr@8% O_2	MACT MM
≤ 286	tpy	SC Std. 7 (PSD)

l b/ETADUBP = pounds per equivalent ton of air dried unbleached pulp
lb/T BLSF = pounds per ton of black liquor solids fired
tpy = tons per year
≤ = less than or equal to
Note 1 MACT MM bubble limit

(Note: See MACT Conditions in Part 7.0 for MACT MM requirements.

Testing: [SC Std. 4 Special Condition] Pursuant to the options allowed by South Carolina Regulation 61-62.4 Standard No. 4, Section XI, A, compliance with PM emission limitations will be demonstrated through source testing once every four years instead on once every two years in accordance with the requirements of this special condition. Testing shall be inaccordance with SC Regulation 61-62.1, Section IV - Source Tests and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durationsas specified in the required test protocol.*[SC Reg. 61-62.5, Std. 4, Section XII(A)]*

If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. The Bureau may modify, suspend, and/or remove this special condition at any time.

Monitoring/Record Keeping/Reporting/Other:
(A): MACT MM Requirements- (Note: See MACT Conditions in Part 7.0 for MACT MM requirements.

(B1): Parameter Compliance Assurance Monitoring (CAM) for PM -This source is subject to 40 CFR 64, CAM (large unit) and shall comply with all applicable provisions

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			The facility shall utilize a continuous opacity monitoring system (COMS) used for PM monitoring requirements of NESHAP 40 CFR 63, Subparts A and MM, which is considered by the Bureau as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for reasonable assurance of continuing compliance with the limitations of SC Std. 4, NSPS BB, SC Std. 7 PSD BACT. To meet the requirements of 40 CFR 64 the owner or operator shall use presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) and maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table 06.6.T2 below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT H, Table H-1. [§64.6(c)(1)(iii) and 64.3(b)] **Table 06.6.T2 No. 2 Recovery Furnace CAM ESP Monitoring for ESP 382A** **PM Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** **CAM Indicator:** (SC Std. 4, 7, and NSPS BB COMS (Opacity) **Data collection**: Computer system and/or manual record keeping | **Frequency:** Minimum of one cycle of sampling and analyzing every successive 10-second period **Monitor requirements**: 40 CFR 63.864(d), §63.8; | **Averaging:** One Cycle of data averaged each successive 6-minute period Operational ranges for the CAM indicator has been established for excursions to indicate proper operation of the control devices (See ATTACHMENT H, Table H-1). These operational ranges for the monitored parameters were derived from stack test data and MACT MM opacity limitations, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Upon detecting an CAM excursion (When any average of ten (10) consecutive 6-minute averages are greater than 20% opacity), the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). The owner or operator shall follow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. For CAM, reporting shall include indications of SC Std. 4, SC Std. 7, and NSPS BB excursions. **(B2): Additional Large Unit CAM Monitoring Requirements** -- If the COMS data (excluding startup and shutdown as well as bad COMS data) averaged over a six (6) minute periods shows excursions over 35 % opacity for six (6) percent or more of the operating time within any quarterly period, the permittee shall perform a stack test in the

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			following calendar quarter to demonstrate compliance with the SC Std. 4, SC Std. 7, and the NSPS BB PM standards. The permittee shall submit and have Department approval for a compliance test protocol representative of operational conditions during the period i question as required by SC Regulation 62.1, Section IV - "Source Tests" before conducting any tests. **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D)for record keeping and reporting requirements for the affected source (382A).
06.7	382B	•PM •*SC Std. 4* •*SC Std. 7* •*NSPS BB* •*MACT MM* •*CAM*	**Limits/Standards [State Only: N o]:** The following are affected source(s) for this condition: No. 2 Smelt Dissolving Tank (382B) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];* ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)];* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance Fo Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* ❑ *[NESHAP 40 CFR 63, Subparts A {General Provisions); MM { National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources A Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills, and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* ❑ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)]* The affected source is subject to SC Std. 4, NSPS BB, MACT MM, and SC Std. 7 prevention of significant deterioration best available control technology (SC PSD BACT) particulate matter and/or particulate matter less than 10 microns (PM/PM_{10}) limitations as shown Table 06.7.T1 below: *[SC Reg. 61 -62.5, Std. 4, Section III; NSPS 40 CFR 60.282(a)(2); NESHAP 40 CFR 63.862(a)(1)(ii)]* **Table 06.7.T1 PM Limitations for ID 02: 382B** **PM Limit** | **PM Units** | **Applicable Regulation** ≤ 1.0 | lb/T EADUBP | SC Std. 4 ≤ 0.2 | lb/TBLS (dry weight) | NSPS BB ≤ 0.2 | lb/TBLS (dry weight) | SC Std. 7 (PSD) ≤ 85.8 | tpy | SC Std. 7 (PSD) ≤ 0.11[1] | gr/dscf@full rate | MACT MM lb/T ETADUBP = pounds per equivalent ton of air dried unbleached pulp lb/TBLS (dry weight) = pounds per ton of black liquor solids dry weight gr/dscf@full rate = grains per dry standard cubic foot at full rate tpy = tons per year ≤ = less than or equal to Note 1 MACT MM bubble limit (Note: See MACT Conditions in Part 7.0 for MACT MM requirements. **Testing:** Compliance with the PM emission limits shall be demonstrated through source testing once every four year s in accordance with SC Regulation 61 -62.1, Section IV - Source Tests and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission ratesover the test run durations as specified in the required test protocol. *[SC Reg. 61-62.5, Std. 4, Section XII(A)]* **Monitoring/Record Keeping/Reporting/Other:** **(A): MACT MM Requirements-** (Note: See MACT Conditions in Part 7.0 for MACT MM requirements. **(B): Parameter Compliance Assurance Monitoring (CAM) for PM -**This source is subject to 40 CFR 64, CAM and shall comply with all applicable provisions The facility will utilize the continuous parametric monitoring system (CPMS) for scrubber operating parameters used for monitoring requirements of MACT MM, which is considered by the Bureau as presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) for reasonable assurance of continuing compliance with the PM limitations of SC Std. 4, SC Std. 7, and NSPS BB. Under the authority of §63.453(m) and §63.8(f), the owner or operator has been granted approval the use of scrubber liquid flow and fan operation (by amps) as alternative monitoring for 40 CFR 63, Subpart S (MACT S). Scrubber flow and fan operation will be used as indicators for PM. To meet the requirements of 40 CFR 64 the owner or operator shall presumptively acceptable monitoring pursuant to §64.2(b)(1)(i) or (vi) and maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table 02.6.T2 below as well as take corrective action based on the defined excursion range(s) shown in ATTACHMENT H, Table H-1. [§64.6(c)(1)(iii) and 64.3(b)]

Table 06.7.T2 No. 2 Smelt Tank CAM Parameter Monitoring for Scrubber 381C	
PM Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
CAM Indicators: SC Std. 4, 7, and NSPS BB □ Total scrubber liquid flow at the fan and precleaner spray nozzles CPMS[1] □ Scrubber operation CPMS (by fan amperage) **Data collection**: Computer system and/or manual record keeping	**Frequency:** Minimum of one cycle of sampling and analyzing every successive 15-minute period
Monitor requirements: □ 40 CFR 63.864(e)(10), §63.8 □ Approved alternative MACT MM monitoring □ Liquid flow certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate	□ **Averaging:** 3- hour averages

Notes: 1. The use of scrubber fan amperage and liquid flow was approved as alternative NSPS BB and MACT MM monitoring for scrubber pressure drop monitoring

Operational ranges for the CAM indicators have been established for excursions to indicate proper operation of the control devices (See ATTACHMENT H, Table H -1). These operational ranges for the monitored parameters were derived from stack test data and MACT MM range limitations, which demonstrate the proper operation of the equipment in

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			compliance. The facility shall maintain previously established operational ranges for thes monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Upon detecting a CAM excursion (When any 3 -hour average is outside established CAM scrubber excursion ranges), the owner or operator shall restore operation of the pollutant - specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or m alfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). The owner or operator shall fo llow all applicable quality control/quality assurance, calibration, operation and maintenance, record keeping, and reporting requirements of 40 CFR 63, Subparts A and MM. For CAM, reporting shall included indications of SC Std. SC Std. 7, and NSPS BB excursions. **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for affected source (381C).
06.8	381A 382A	•SO_2 •CO •NO_X •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Recovery Furnace (381A), •No. 2 Recovery Furnace (382A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* The affected source is subject to SC Std, 7 prevention of significant deterioration best available control technology (SC PSD BACT) Sulfur Dioxide (SO_2), Carbon Monoxide (CO), and Nitrogen Oxides (NO_X) limitations as in Table 06.8.T1 below:

Table 06.8.T1 SO_2, CO, and NO_X Limitations or ID 06: 381A and 382A

Equipment ID	Pollutant	Pollutant Limit	Pollutant Units
381A	SO_2	≤ 280	ppm@8 % O_2
381A	SO_2	≤ 1593	tpy
381A	CO	≤ 2.0	lb/ADTP
381A	CO	≤ 246	tpy
381A	NOx	≤ 210	ppm (dry) @8 % O_2
381A	NOx	≤ 859	tpy
382A	SO_2	≤ 200	ppm@8 % O_2
382A	SO_2	≤ 2200	tpy
382A	CO	≤ 8	lb/ADTP
382A	CO	≤ 2137	tpy
382A	NOx	≤ 150	ppm (dry) @8 % O_2
382A	NOx	≤ 1197	tpy

≤ = less than or equal to
ppm@8 % O_2 = parts per million corrected to 8 percent Oxygen

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			lb/ADTP = pounds per air dried ton of pulp tpy = tons per year **Testing:** Periodic source testing will beused to show reasonable assurance of continuing compliance with the applicable SC Std. 7 SO_2, CO, and NOx emission limits for the recovery furnaces. Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 6/6C will be used to show compliance for SO_2; EPA Method 10 will be used to show compliance with CO; and EPA Method 7-7E will be used to show compliance with NO_X. Alternative test methods may be allow ed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61 -62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stac tests shall be scheduled a nd conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. **Monitoring/Record Keeping/Reporting/Other:** **(A): Periodic Monitoring:** Source testing schedule used for periodic compliance monitoring. (See Testing above). **(B): Fuel Use -** The affected sources are permitted to burn only the following fuels:.

Table 06.8.T2 Fuel Limitations for 381A and 382A	
Permitted Fuel	**Comment**
No. 1 Recovery Furnace:	
No. 2 fuel oil	
No. 5 fuel oil	

Table 06.8.T2 Fuel Limitations for 381A and 382A	
Permitted Fuel	**Comment**
No. 6 fuel oil	
Spec oil	See Condition 06.12 for limitations
Black liquor	
Black liquor with oxanane oil stripper bottoms (OSB) used as a pulp cooking make-up chemical	
No. 2 Recovery Furnace:	
No. 2 fuel oil	See limitations below
No. 5 fuel oil	See limitations below
No. 6 fuel oil	See limitations below
Spec oil	See Condition 06.12 for limitations
Black liquor	
Black liquor with oxanane oil stripper bottoms (OSB) used as a pulp cooking make-up chemical	

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			The use of any other substances as fuel is prohibited without prior written approval fom the Bureau. **(C): Annual Fossil Fuel Capacity Factor** The No. 2 Recovery Furnace shall not burn fossil fuel at an annual capacity factor of greater than 10%, to remain below the most stringent threshold for applicability of 40 CFR 60, Subpart Db. Monthly fuel usage shall be recorded and maintained on site. Semiannual summary of any variances from parameter/limits and any action taken shall be submitted to the Bureau. **(D): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected source (381A and 382A).
06.9	381C 382B	•SO_2 •*SC Std. 7*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No. 1 Smelt Dissolving Tank (381C), •No. 2 Smelt Dissolving Tank (382B) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* The affected source is subject to SC Std, 7 prevention of significant deterioration (PSD) best available control technology (BACT) Sulfur Dioxide (SO_2) limitations as in Table 06.9.T1 below: **Table 06.9.T1 SO_2 Limitations for ID 06: 381C and 382B** **Equipment** / **SO_2 Limit** / **SO_2 Units** 381C / ≤ 0.1 / lb/ADTP 381C / ≤ 12 / tpy 382B / ≤ 0.1 / lb/ADTP 382B / ≤ 27 / tpy ≤ = less than or equal to lb/ADTP = pounds per air dried ton of pulp tpy = tons per year **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): Continuous Monitoring for SO_2**-The continuous parametric monitoring system(s) CPMS calibrated, maintained and operated for NESHAP 40 CFR 63, Subpart MM (MACT MM) requirements for the smelt dissolving tanks will also be used to show reasonable assurance of compliance with applicable SC Std. 7 SO_2 limits for the affected sources. Under the authority of §63.453(m) and §63.8(f), the owner or operator has been granted approval the use of scrubber liquid flow and fan operation (by amps) as alternative monitoring for 40 CFR 63, Subpart S (MACT MM). Scrubber flow and fan operation will be used as indicators for PM. All applicable MACT MM calibration, measurement specifications for liquid flow device operation, sampling frequency, averaging time, data reduction, record keeping, reporting, and maintenance requirements for the CPMS will apply for the use of the CPMS for SO_2 monitoring. The sampling frequency and averaging time are as follows: *[SC Reg. 61-62.70(6)(3)(i)(A) {Streamlining}]*

Conditions For Unit ID 06 – Chemical Recovery

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			Table 06.9.T2 Smelt Tanks TV Parameter Monitoring for Scrubber 381C and 382B **SO_2 Monitoring Method/Requirements** / **Sampling Frequency/Averaging Time** **Monitoring:** (SC Std. 7) □ Scrubber Total liquid flow at the fan and precleaner spray nozzles [1] CPMS □ Scrubber fan operation (by amperage)[1] CPMS **Frequency**: Minimum of one cycle of sampling and analyzing every successive 15-minute period **Monitor Requirements**: □ 40 CFR 63.8 □ Approved alternative MACT MM Monitoring □ Liquid flow certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate **Averaging:** 3-hour averages Operating ranges for scrubber operating parameters have been established to show reasonable assurance of compliance with the SO_2 limitations of SC Std. 7 based on test data, vendor information, visual observations, and/or operational history, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Directo of Engineering Services, Bureau of Air Quality for approval. Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur Each incidence of operation outside the operational ranges, including date and time, caus and corrective action taken, shall be recorded and kept on site. Semiannual reports including any variances from established parameters (Any three (3) hour average value outside the established ranges) and appropriate corrective action taken during the reporting period shall be submitted to the Bureau. If no incidences occurred during the reporting period then the report shall indicate such. **(B):** PSD Annual Emission Monitoring -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected source (381C and 382B).
06.10	381A 382A	•TRS •*NSPS BB* •*SC Std. 7*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 Recovery Furnace (381A), •No. 2 Recovery Furnace (382A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* □ *[SC Reg. 61-62.5, Standard 7 (SC Std. 7)]* The affected sources are subject applicable requirements of NSPS BB, and SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT) for total reduced sulfur (TRS) limitations as shown in the Table 06.10.T1 table below: **Table 06.10.T1 TRS Limitations for ID 06:381A and 382A**

Conditions For Unit ID 06 – Chemical Recovery

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions

Equipment	TRS Limit	TRS Units	Applicable Regulation
381A	≤ 5	ppmv @ 8% O_2 (dry basis)	NSPS BB
381A	≤ 5	ppmv @ 8% O_2 (dry basis)	SC Std. 7 (PSD)
381A	≤ 15	tpy	SC Std. 7 (PSD)
382A	≤ 5	ppmv @ 8% O_2 (dry basis)	NSPS BB
382A	≤ 5	ppmv @ 8% O_2 (dry basis)	SC Std. 7 (PSD)
382A	29.4	tpy	SC Std. 7 (PSD)

ppmv@8%O_2(dry weight) = parts per million volume basis at 8 percent Oxygen (dry weight)
tpy = tons per year

Testing: Not Required

Monitoring/Record Keeping/Reporting/Other:
(A): TRS Continuous Monitoring -The owner or operator shall install, calibrate, maintain and operate continuous emissions monitoring systems (CEMS) to monitor and record the concentration of TRS emissions on a dry basis and the percent oxygen by volume on a dry basis in the gases discharged into the atmosphere for the recovery furnaces. The CEMS must be calibrated, maintained, and operated in accordance with th applicable requirements of 40 CFR 60.284 (f), 40 CFR 60.13, and Performance Specification 3, and 5 of Appendix B of 40 CFR, Part 60. The owner or operator shall calculate and record on a daily 12-hour average TRS concentrations and O_2 concentrations for the two consecutive periods of each operating day. Excess emissions for each emissio unit are as follows: *[SC Reg. 61-62.5, Std. 4, Section XI(C); NSPS 40 CFR §60.284(a); §60.284(a)(1); §60.284(a)(2)]*

- Recovery furnace excess emissions are defined as all 12-hour averages of TRS concentrations above 5 ppmv @ 8% O_2 [calculated in accordance with 40CFR 60.284(c)(1)-(c)(4)].

The Bureau will not consider periods of excess emissions to be indicative of a violation of 40 CFR 60, Subpart BB if:

- The number of 12 hour exceedances from recovery furnaces is less than or equal to 1% o the total number of contiguous 12 hour periods in a quarter (excluding periods of startup shutdown, or malfunction and periods when the recovery furnace is not operating).
- The Bureau determines that the affected equipment, including air pollution control equipment, is maintained and operated in a manner which is consistent with good air pollution control practice for minimizing emissions during periods of excess emissions.

[*NSPS 40 CFR; §60.284(e)]*

The owner or operator shall submit a semiannual Excess emissions and monitoring syster performance report and/or a summary report for affected sources. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is les than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or th total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			submitted. *[NSPS 40 CFR 60.7(c); 60.7(d)]* Reports shall include the information required by §60.7(c) and §60.7 (d) and shall be submitted to the Bureau. If there are no excess emissions during the reporting period, the report should state such information. **(B): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected source (381A and 382A).
06.11	381C 382B	•TRS •*NSPS BB* •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Smelt Dissolving Tank (381C); •No. 2 Smelt Dissolving Tank (382B) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions};BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60, Subparts A and BB (NSPS BB)]* ❑ *[SC Reg. 61-62.5, Standard 7 (SC Std. 7)]* The affected sources are subject applicable requirements of NSPS BB and SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT) for total reduced sulfur (TRS) limitations as shown in the Table 06.11.T1 below: *[NSPS 40 CFR 60.283(a)(4)]*

Table 06.11.T1 TRS Limitations for ID 06: 381C and 382B

Equip. ID	TRS Limit	TRS Units	Applicable Regulation
381C	≤ 0.033	lbs/ton BLS(dry weight)	NSPS BB
381C	≤ 0.033	lbs/ton BLS(dry weight)	SC Std. 7 (PSD)
381C	≤ 7.0	tpy	SC Std. 7 (PSD)
382B	≤ 0.033	lbs/ton BLS(dry weight)	NSPS BB
382B	≤ 0.0168	lbs/ton BLS(dry weight)	SC Std. 7 (PSD)
382B	≤ 7.2	tpy	SC Std. 7 (PSD)

ppmv@8%O_2(dry weight) = parts per million volume basis at 8 percent Oxygen (dry weight)
lbs/T BLS(dry weight) = pounds per ton of black liquid solids (dry weight)
tpy = tons per year

Testing: Not Required

Monitoring/Record Keeping/Reporting/Other:
(A): TRS Monitoring-The continuous parametric monitoring system(s) CPMS calibrated maintained and operated for NESHAP 40 CFR 63, Subpart MM (MACT MM) requirements for the smelt dissolving tanks will also be used to show reasonable assurance of compliance with applicable TRS limitations of SC Std. 7 and NSPS BB. Under the authority of §63.453(m) and §63.8(f), the owner or operator has been granted approval the use of scrubber liquid flow and fan operation (by amps) as alternative monitoring for 40 CFR 63, Subpart S (MACT S). Scrubber flow and fan operation will be used as indicator for TRS. All applicable MACT MM calibration, measurement specifications for pressure drop and supply pressure devices, operation, sampling fre quency, averaging time, data reduction, record keeping, reporting, and maintenance requirements for the CPMS will

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			apply for the use of the CPMS for TRS monitoring. The sampling frequency and averaging time are listed in Table 06.11.T2 below. *[SC Reg. 61 -62.70(6)(3)(i)(A) {Streamlining}]*

Table 06.11.T2 Smelt Tanks TV Parameter Monitoring for Scrubbers 381C and 382B

TRS Monitoring Method/Requirements	Sampling Frequency/Averaging Time
Monitoring: (SC Std. 7 and NSPS BB) □ Scrubber Total liquid flow at the fan and precleaner spray nozzles [1] CPMS □ Scrubber fan operation (by amperage)[1] CPMS	**Frequency:** Minimum of one cycle of sampling and analyzing every successive 15-minute period
Monitor Requirements: □ 40 CFR 63.8 □ Approved alternative MACT MM monitoring □ Liquid flow certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate	**Averaging:** 3-hour averages

Operating ranges for the scrubber parameters have been established to show reasonable assurance of compliance with the TRS limitations of SC Std. 7 and NSPS BB based on te data, vendor information, and/or operational history, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for these monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Monitoring parameter readings (i.e., pressure drop readings, etc.) shall be maintained in logs (written or electronic), along witl any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall b recorded and kept on site.

The owner or operator shall submit a semiannual Excess emissions and monitoring syster performance report and/or a summary report for the affected sources If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is les than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or tl total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted. [NSPS 40 CFR 60.7(c); 60.7(d)]

Reports shall include the information required by §60.7(c) and §60.7(d) and shall be submitted to the Bureau. If there are no excessemissions during the reporting period, the report should state such information.

The owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative as well as records required by NSI 40 CFR 60.7(f). [NSPS 40 CFR 60.7(b)]

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			(B): PSD Annual Emission Monitoring -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected sources (381C and 382B).
06.12	381A 382A	•Used Oil •*SC Std. 3*	**Limits/Standards [State Only: Yes] :** The following are affected source(s) for th is condition: •No. 1 Recovery Furnace (381A), •No. 2 Recovery Furnace (382A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)]* The facility is subject to applicable requirements of SC Std. 3 when burning used oil. Th affected sources are allowed to burn specification used oil (spec oil) that is purchased or generated on-site. Spec oil is oil that has been refined from crude or synthetic oil and as a result of use, storage, or handling, has become unsuitable for its original purpose due to t presence of impurities or loss of original properties, but which may be suitable for further use and may be economical ly recyclable. This also includes absorbent material contaminated with used oil such as oily rags or absorbent blankets. Spec oil burned in the combination boilers must meet the following specifications: **Table 06.12.T1-Standard 3 Specification Oil Limits for ID 06: 381A and 382A** **Pollutant** — **Specification Oil Limit** arsenic — 5 parts per million (ppm) maximum cadmium — 2 parts per million (ppm) maximum chromium — 10 parts per million (ppm) maximum lead — 100 parts per million (ppm) maximum Nickel — 120 parts per million (ppm) maximum Total halogens — 4000 parts per million (ppm) maximum Flash point — 100 ^{O} F minimum ppm = parts per million Used oil containing more than 1000 parts per million total halogens is presumed to be a hazardous waste. The burden o f proof that this is not true rests with the user. For this emission limitation , the procedures in South Carolina Regulations 61-62.5, Standard 3, Section V , A and H shall be used to define and quantify compliance with requirements f these units. *[SC Reg. 61-62.1, Section I(91) {Definitions}; SC Reg. 61-62.5, Std. 3, Section I]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** The affected sources are permitted to burn spec oil, which is subject to SC Std. 3 requirements. A spec oil provider certification shall be obtained for each batch of spec oil received and stored on site. Each batch of spe oil that is to be burned must be analyzed for the following: ❑ Classified as hazardous or non-hazardous

Conditions For Unit ID 06 – Chemical Recovery			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			□ Spec Oil or non Spec Oil □ Heat value; total halogen; percent nitrogen; percent sulfur Each batch of spec oil that is to be burned must be characterized to determine if it is hazardous or non-hazardous and to identify by analysis or special knowledge of the oil (MSDS, waste profiles, etc.). For each batch of used oil that is generated on site and is to be burned on site, an annual analysis (from each source that has generated the used oil) shall be performed for the following: □ Classified as hazardous or non-hazardous □ Spec Oil or non Spec Oil □ Heat value; total halogen; percent nitrogen; percent sulfur Records of all analyses shall be maintained on site. Semiannual reports of any variances from established parameters during the reporting period shall be submitted to the Bureau Analytical methods shall be in accordance with South Carolina Regulation 61 -62.5, Standard 3, Section V(H), unless alternative methods are approved by the Manager of Technical Management , Bureau of Air Quality. Records of all analyses shall be maintained and annual reports of the analysis (as required above) shall be submitted to Bureau. *[SC Reg. 61-62.5, Std. 3, Section V]*
06.13	381A 381C 382A 382B	•HAP •*MACT MM*	This facility, including the affected sources for this emission unit, is subject to all applicable limits and requirements of NESHAP 40 CFR 63, Subparts A {General Provisions} and MM {National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand -Alone Semichemical Pulp Mills} (MACT MM). See Part 7.0. for limitations, notification, testing, monitoring, inspection, SSM, record keeping, and reporting requirements of MACT MM.
06.14	381A 382A	•Facility wide NO_X •*SC Agreement*	The limitations and requirements for the facility wide nitrogen oxides (NO_X) emissions for affected sources, including these sources, are listed in Facility Wide Condition FW.2 (Par 5, Section D).
06.15	381A	•*PSD Significance Monitoring SC Std. 7*	See Facility Wide Condition FW.1 (Part 5, Section D) for SC Reg. 61 -62.5, Std. 7(r) record keeping and reporting requirements for Construction Permit 1900-0046-DJ.

Table 5.15- Unit ID 07 – Power Boilers				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
501A	545 Million BTU/hr No.1 Power Boiler:	2/25/82	501A	501ASCE
501B	149000 TPY Flyash System: intermediate tanks; vacuum system; storage silo	2/25/82	501B	501BSCE
502A	500 Million BTU/hr No.2 Power Boiler:	7/31/89	502A	502ASCE
502B	486,667 TPY Wood Bark System: (unloading; bark hogs; fines cyclones; conveying; bark storage piles; stacker/reclaimer; bark bins)	7/31/89	None	502BF

Table 5.15- Unit ID 07 – Power Boilers				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
530A	157,109 TPY Coal System: (rail unloading; coal pile; coal conveying; coal crusher; coal silos)	2/25/82	None	530AF

Table 5.16-Control Device(s) For Unit ID 07 – Power Boilers			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
501A	No.1 Power Boiler ESP	Feb 25, 1982	PM/PM_{10}
501A	No.1 Power Boiler Mechanical Dust Collector	Feb 25, 1982	PM/PM_{10}
502A	No.2 Power Boiler Mechanical Dust Collector	July 31, 1989	PM/PM_{10}
502A	No.2 Power Boiler ESP	July 31, 1989	PM/PM_{10}

Conditions For Unit ID 07 – Power Boilers

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
07.1	501B 502B 530A	•Opacity •*SC Std. 4* •*SC Std. 7* •*NSPS Y*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •Fly Ash System (501B), •Bark System (502B), •Coal System (530A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries} (SC Std. 4)];* ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)];* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions}; { Standards Of Performance For Coal Preparation Plants}; and SC Reg. 61-62.60 (NSPS Y)](530A)* The affected sources are subject to all applicable requirements of SC Std. 4. Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affected sources. Where construction or modification began after December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 20% for the affected sources. In addition, 501B and 502B are also subject to prevention of significant deterioration (PSD) best available control technology (BACT) Opacity limitations; and 530A is also subject to NSPS Y Opacity limitations. As such, the affect sources must not exceed the opacity limitations listed in Table 07.1.T1 below:*[SC Reg. 61-62.5, Std. 4, Sec. XI(A) and (B); NSPS 40 CFR 60.252(c)]* **Table 07.1.T1 ID 07 Opacity Limitations for Various Equipment** **Equipment** / **Opacity Limit (%)** / **Applicable Regulation** 501B / ≤ 20 / SC Std. 4 501B / ≤ 20 / SC Std. 7 (PSD) 502B / ≤ 20 / SC Std. 4 502B / ≤ 10 / SC Std. 7 (PSD) 530A / ≤ 20 / SC Std. 4 530A / ≤ 20 / NSPS Y **Testing:** Not Required. **Monitoring/Record Keeping/Reporting/Other: Wet Suppression-** **(A): Visual Emissions Inspections**The owner or operator shallperform visual emissions

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			inspections in accordance with the frequencies and procedures in Facility Wide Conditio FW.4 (Part 5, Section D). **(B): Wet Suppression/Ash Conditioning: Affected Sources: 501B and 530A** -The facility shall use wet suppression and or ash conditioning as necessary to minimize fugiti emissions and maintain opacity at the standard's acceptable level for 501B and 530A. Inspections shall be performed once per day during operation, and shall be shall be recorded in a permanent form suitable and available for inspection by representatives of this Bureau. Semiannual reports of inspections are required.
07.2	501A 502A	•Opacity •*SC Std. 1* •*NSPS D* •*NSPS Db*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: • No. 1 Power Boiler (501A), •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg.61-62.5, Standard No. 1 {Emissions From Fuel Burning Operations} (SC Std. 1)]* □ *[NSPS 40 CFR 60, Subparts A {General Provisions}; D {Standards Of Performance Fo Fossil-Fuel Fired Steam Generators For Which Construction Is Commenced After Augu 17, 1971}; and SC Reg. 61-62.60, Subparts A and D (NSPS D)] (No. 1 Power Boiler)* □ *[NSPS 40 CFR 60, Subparts A {General Provisions} and Db {Standards Of Performance For Industrial-Commercial-Institutional Steam Generating Units }; and SC Reg. 61 - 62.60, Subparts A and Db (NSPS Db)](No. 2 Power Boiler)* The affected sources are subject to all applicable requirements of SC Std. 1. In addition, the No. 1 and No. 2 Power Boilers are also subject to all applicable requirements of NSP D and Db, respectively. In accordance with NSPS D and NSPS Db, the affected source shall not Exhibit greater than 20 percent opacity except for one six-minute period per hour of not more than 27 percent opacity . SC Std. 1 allows opacity limit to be exceeded be exceeded for sootblowing, but the limit may not be exceeded for more than six (6) minutes in a one hour period nor be exceeded for more than a total of twenty-four (24) minutes in a twenty-four (24) hour period. Emissions caused by sootblowing shall not exceed sixty (6 percent opacity. However, the NSPS D requirements are more stringent and must be met. The NSPS Db opacity standards for 502A apply at all times, except during periods of startup, shutdown or malfunction. *[SC Reg. 61-62.5, Std. 1, Section I(A); NSPS 40 CFR 60.42(a)(2), §60.43b(f), 60.43b(g)]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other: Continuous Opacity Monitoring** -The owner or operator shall continue to calibrate, operate, and maintain continuous opacity monitoring systems COMS) on the affected sources. Opacity shall operate at a minimum of one cycle of sampling and analyzing every successive 10-second period and once cycle of data shall be averaged each successive 6-minute period. The COMS shall meet the requirements of SC Reg. 61-62.5, Std. 1, Sec. IV(D) as well as NSPS 4 0 CFR 60, Appendix B, Performance Specification 1, §60.45 and §60.13. Excluding unit startup and shutdown, if any six - minute opacity value exceeds 20%, the permittee shall, as appropriate, initiate an inspection of the control equipment and/or the COMS and make the necessary repairs. Excess emissions are defined by NSPS as any six-minute period during which the average opacity of emissions exceeds 20 percent opacity, except that one six-minute average per hour of up to 27 percent opacity need not be rep orted. Quarterly continuous opacity

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			monitor reports shall be submitted. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report form shall be submitted. If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, the summary report and the excess emission report shall both be submitted.*[SC Reg. 61-62.5, Std. 1(IV)(B); NSPS 40 CFR 60.7(c); 60.7(d)]* Reports shall include the information required by §60.7(c) and §60.7(d) and shall be submitted to the Bureau. If there are no excess emissions during the reporting period, the report should state such information. In addition to the information in 60.7(c) and 60.7(d) the reports shall include: □ All integrated six minute opacity measurements for periods during which the applicable provisions of SC 62.5, Std. 1, Section I have been exceeded, together with their nature and cause. □ Boiler system repairs or adjustments made to correct violations of the provisions of SC Regulation 61-62.5, Standard No. 1, Section I. Proof of opacity monitoring system performance may be required by the Bureau whenever repairs or adjustments have been made. If no reportable incidents occurred during the quarter, a report is also required to indicate such. [SC Reg. 61-62.5, Section VI(B)] The owner or operator shall maintain a file of all information contained in the quarterly reports, calibration data for the COMS, relevant records of adjustments and maintenance performed on such system(s), and all data generated by the COMS. In addition, records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative as well as records required by NSPS 40 CFR 60.7(f) shall be maintained on site.*[NSPS 40 CFR 60.7(b)]*
07.3	501B 502B 530A	•PM •*SC Std. 4*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •Fly Ash System (501B), •Bark System (502B), •Coal System (530A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries (SC Std. 4)}]* Particulate matter (PM) emissions shall be limited to the rate specified by use of the following equations: for process weight rates less than or equal to 30 tons per hour ($E = 4.10P^{0.67}$) and for process weight rates greater than 30 tons per hour ($E = 55.0P^{0.11} - 40$) where E = the allowable emission rate in pounds per hour and P = process weightrate in tons per hour. As such, the allowable PM emissions limit for the affected sources is limited to the amount shown in table 07.3.T1 below (applicable process weight rates shown for SC Std. 4 limits) : *[SC Reg. 61-62.5, Std. 4, Sec. VIII(A) and VIII(B)]* **Table 07.3.T1 PM Limitations for ID 07: 501B, 502B, and 530A**

Conditions For Unit ID 07 – Power Boilers

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions

Equipment	Emission Limit (lbs/hr)	Process Weight Rate for Limit Calculation (tph)
501B	≤ 27.0	17.0
502B	≤ 46.0	55.55
530A	≤ 28.0	18.0

≤ = less than or equal to
lb/hr = pounds per hour
tph = tons per hour

Testing: Not Required

Monitoring/Record Keeping/Reporting/Other:
(A): Visual Emission Inspect ion (VE)-The owner or operator shall perform (VE) in accordance with the frequencies and procedures in Facility Wide Condition FW.4(Part 5, Section D).

(B): Wet Suppression/Ash Conditioning: Affected Sources: 501B and 530A -The facility shall use wet suppression and or ash conditioning as necessary to minimize fugitiv emissions and maintain opacity at the standard's acceptable level for the affected sources (501B and 530A). Inspections shall be performed once per day, and shall be recorded in permanent form suitable and available for inspection by representatives of this Bureau. Semiannual reports or inspections are required.

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
07.4	501A 502A	•PM •*SC Std. 1* •*SC Std. 7* •*NSPS D* •*NSPS Db* •*CAM*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 Power Boiler (501A), •No. 1 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 1 {Emissions from Fuel Burning Operations (SC Std. 1)* ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7);* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions}; D {Standards Of Performance Fo Fossil-Fuel Fired Steam Generators For Which Construction Is Commenced After August 17, 1971}; and SC Reg. 61-62.60, Subparts A and D (NSPS D)]* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions}; Db {Standards Of Performance For Industrial-Commercial-Institutional Steam Generating Units}(NSPS Db); and SC Reg. 61-62.60, Subparts A and Db (NSPS Db]* ❑ *[40 CFR 64{ Compliance Assurance Monitoring} (CAM)]* The affected sources is subject to all of the SC Std. 1, SC Std. 7, NSPS D, and NSPS Db particulate matter (PM) limitations as shown in Table 07.04.T1 below*[SC Reg. 61-62.5, Std. 4, Section III; NSPS 40 CFR 60.280(a)(1)(i)]*

Table 07.4.T1 PM Limitations for 501A and 502A

Equipment	PM Limit	PM Units	Applicable Regulation
501A	≤ 0.6	lb/10^6 Btu heat input	SC Std. 4
501A	≤ 0.10	lb/10^6 Btu heat input	NSPS D
501A	≤ 0.10	lb/10^6 Btu heat input	SC Std. 7 (PSD)
501A	≤ 217	tpy	SC Std. 7 (PSD)
501A	≤ 0.6	lb/10^6 Btu heat input	SC Std. 4
502A	≤ 0.20	lb/10^6 Btu heat input	NSPS Db

Conditions For Unit ID 07 – Power Boilers

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions

502A	≤ 0.05	lb/10^6 Btu heat input	SC Std. 7 (PSD)
502A	≤ 131	tpy	SC Std. 7 (PSD)

≤ = less than or equal to
lb/10^6 Btu = pounds per million British thermal units
tpy = tons per year

The SC Std. 7 0.05 lb/Million Btu PSD BACT limit is a short-term limit (3-hr block average) and the SC Std. 7 131 tpy is a long term limit (12 month rolling average). The emission limitations with the associated ESP/multiclone system for 502A are considered BACT for this source.

Testing: Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable PM emission limits for the affected sources (501A and 502A). Source testing shall be conducted every two (2) years in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 5 will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. PM compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol.

For periodic monitoring purposes if a unit exceeds 80 percent of its PM emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 80 percent of its particulate limit, as shown by two consecutive annual stack tests in which emissions are less than 80% of the standard, the source may resume biennial stack testing. All source test reports shall be submitted to the Manager of the Source Evaluation Section of the Bureau of Air Quality no later than 30 days after the completion of the on-site testing.

Monitoring/Record Keeping/Reporting/Other:
(A1): Continuous Compliance Assurance (CAM) for PM -The affected source is subject to 40 CFR 64, CAM (large units) and shall comply with all applicable provisions The facility will use the COMS installed, calibrated, and operated for showing compliance with opacity standards for SC Std 1,NSPS D (501A), and NSPS Db (502A) for the affected sources (501A and 502A). Opacity as determined by each COMS will be used as the CAM indicators to show reasonable assurance of compliance with SC Std 1, SC Std. 7 and NSPS PM limitations.

To meet the requirements of 40 CFR 64 the owner or operator shall maintain the indicator(s) [monitoring methods, sampling frequencies, data collection procedures, and averaging time(s) (where appropriate), operation and maintenance practices, and quality control/quality assurance (QA/QC) practices] in the table 07.4.T2 below as well as take corrective action based on the defined excursion e range(s) shown in ATTACHMENT H Table H-1. [§64.6(c)(1)(iii) and 64.3(b)]

Table 07.4.T2 Power Boilers CAM Parameter Monitoring for ESP 501A and 502A	
PM Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
CAM Indicator: (SC Std. 2, NSPS D, and Db) □ COMS (Opacity) **Data collection**: Computer system and/or	**Frequency:** Minimum of one cycle of sampling and analyzing every successive 10-second period

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			manual record keeping COMS Requirements: □ 40 CFR 60, Appendix B-Performance Specification 1 □ 40 CFR 60.13 □ SC Reg. 61-62.5, Std. 1 **Averaging**: One Cycle of data averaged each successive 6-minute period Operational ranges for the CAM indicator have been established for excursions to indicat proper operatio n of the control devices (See ATTACHMENT H, Table H -1). These operational ranges for the monitored parameters were derived from stack test data and vendor information, which demonstrate the proper operation of the equipment in compliance. The facility shall maintain previously established operational ranges for thes monitored parameters. The operating ranges may be updated using this procedure, following submittal to the Director of Engineering Services, Bureau of Air Quality for approval. Upon dete cting a CAM excursion (6-minute average are outside the established opacity excursion range), the owner or operator shall restore operation of the pollutant -specific emissions unit (including the control device and associated capture system) to its normal usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). A quarterly report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable: □ Summary information of the number, duration and cause (including unknown cause, if applicable) of excursions, as applicable, and the corrective actions taken; □ Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable); □ If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring. The owner or operator shall maintain records of monitoring data, monitor performance data, corrective action, and quality improvement plans. **(A2): Additional Large Unit CAM Monitoring Requirements-**If six (6) percent or greater of six-minute average COMS data (excluding startup and shutdown recorded in a calendar quarter show excursions above the excursion level, the permittee shall perform a stack test in the following calendar quart er to demonstrate compliance with the PM standard. The permittee shall submit and have Bureau approval for a compliance test protocol representative of operational conditions during the period in question as required by SC Regulation 62.1, Section IV - "Source Tests" before conducting any tests.

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			(B): PSD Annual Emission Monitoring -See Facility Wide Condition FW.3 (Part 5, Section D) for record keeping and reporting requirements for the affected sources (501A and 502A)
07.5	501A	•SO_2 Streams to Source •*SC Std. 1* •*SC Std. 7* •*NSPS D*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Power Boiler (501A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 1 {Emissions From Fuel Burning Operations} {SC Std. 1);* □ *[SC Regulation 61-62.5, Standard No. 7 {PSD} (SC Std. 7);* □ *[NSPS 40 CFR 60, Subparts A {General Provisions}; D {Standards Of Performance Fo Fossil-Fuel Fired Steam Generators For Which Construction Is Commenced After Augu 17, 1971};and SC Reg. 61-62.60, Subparts A and D (NSPS D)]* The affected source is subject to SC Std. 1, NSPS D, and SC Std. 7 prevention of significant deterioration (BACT) best avail able control technology (BACT) Sulfur Dioxide (SO_2) shown Table 07.5.T1 below: *[SC Reg. 61.65.5, Std. 1, Sec. III; NSPS 40 CFR 60.43(a)(1), 60.43(a)(2), 60.43(b)]* **Table 07.5.T1 SO_2 Limitations for ID 07: 501A** **SO_2 Limit** / **SO_2 Units** / **Applicable Regulation** ≤ 3.5 / lb/10^6 Btu heat input / SC Std. 1 ≤ 1.2 / lb/10^6 Btu heat input on coal / NSPS D ≤ 1.2 / lb/10^6 Btu heat input on coal / SC Std. 7 (PSD) ≤ 0.8 / lb/10^6 Btu heat input on oil / NSPS D ≤ 0.8 / lb/10^6 Btu heat input on oil / SC Std. 7 (PSD) ≤ Prorated / lb/10^6 Btu heat input on coal/oil mixture / NSPS D ≤ Prorated / lb/10^6 Btu heat input on coal/oil mixture / SC Std. 7 (PSD) ≤ 2602 / tpy from burning coal and oil / SC Std. 7 (PSD) ≤ 894 / tpy from burning dilute NCG / SC Std. 7 (PSD) ≤ = less than or equal to lb/10^6 Btu heat input = pounds per million British Thermal Units heat input tpy = tons per year When burning coal in combination with fuel oil, this source shall not discharge into the atmosphere any SO_2 emissions which contain in excess this prorated standard using the following formula (calendar month period): $PSSO_2 = [y(0.8) + z(1.2)]/(y + z)$ [Equation 07.5EQ1] where: □ $PSSO_2$ = The prorated standard for sulfur dioxide when burning different fuels simultaneously, lbs per mllion Btu heat input derived from all fossil fuels fired or from a fossil fuels and wood residue fired □ y = The fraction of total heat input derived from liquid fossil fuel □ z = The fraction of total heat input derived from solid fossil fuel **Testing:** Not required. **Monitoring/Record Keeping/Reporting/Other:**

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(A1): Fuel Use – The affected source is permitted to burn only fuels:

Table 07.5.T2 Fuel Use Limitations

Permitted Fuel	Maximum Sulfur Content (% by wt.)	Comment
Coal	N/A	
No. 5 fuel oil	N/A	
No. 6 fuel oil	N/A	
Wood waste/Bark		
Spec oil and spec oil debris		Spec Oil definition (See Condition 07.13)
Permitted Streams to 501A		
LVLC Gases in Dilute NCG System		
HVLC Gases		
Dilute non-condensable gases		

N/A = Not applicable

Permitted coal usage shall also include the following synfuel:
- coal with HES binder (petroleum emulsion-MSDS identification AMI-403)
- coal with NALCO 9838 binder (water based vinyl polymer)
- coal with Dow Latex 298NA binder (latex emulsion in water)
- coal with CLC-3 binder (water based emulsion with tall oil pitch, crude tall oil, fatty acids, and emulsifier)

The use of any other substances as fuel is prohibited without prior written approval from the Bureau.

The owner or operator shall record and maintain records of the amounts and types of each fuel combusted by the affected source. The amount and type of fuel combusted shall be recorded daily, and maintained on site.

(A2): Fuel Monitoring-The owner or operator must record:
- Monthly fuel oil, coal, woodwaste, gas and spec oil consumption and calculate yearly fuel oil consumption as a twelve month rolling sum.
- Vendor certification is required to demonstrate SO_2 emissions when oil and coal are combusted. Certification shall be obtained for each batch of oil and coal received and stored on site.

- Monthly calculations shall be performed using daily fuel oil and coal and spec oil consumption to show compliance with SO_2 emissions to be less than or equal to the prorated standard using Equation 07.5.EQ1 above.
- A chemical analysis or manufacturers' certifications to show type and content of the binders shall be maintained by the facility on all shipments of synfuel received. There are no other requirements for synfuel are required at this time.

Quarterly reports of the monthly use of fuel oil, coal, gas, woodwaste, and spec oil as well as the twelve month rolling sum of fuel oil use shall be reported to the bureau. and the fuel monitoring information above including a summary report and any variances from established parameters and appropriate corrective action taken shall be submitted

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			to the Bureau. **(B): PSD Annual Emission Monitoring**-See Facility Wide Condition FW.3 for record keeping and reporting requirements for the affected source (501A).
07.6	502A	•SO_2 Streams to Source •*SC Std. 1* •*SC Std. 7* •*NSPS Db*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ☐ *[SC Reg. 61-62.5, Standard No. 1 {Emissions From Fuel Burning Operations} {SC Std. 1);* ☐ *[SC Regulation 61-62.5, Standard No. 7 {PSD} (SC Std. 7);* ☐ *[NSPS 40 CFR 60, Subparts A {General Provisions}; Db {Standards Of Performance For Fossil-Fuel Fired Steam Generators For Which Construction Is Commenced After August 17, 1971}; and SC Reg. 61-62.60, Subparts A and Db (NSPS Db)]* The affected source is subject to SC Std. 1, NSPS Db, and SC Std. 7 prevention of significant deterioration (BA CT) best available control technology (BACT) Sulfur Dioxide (SO_2) shown Table 07.6.T1 below: *[SC Reg. 61.65.5, Std. 1, Sec. III; NSPS 40 CFR 60.43(a)(1), 60.43(a)(2), 60.43(b)]*

Table 07.6.T1 SO_2 Limitations for ID 07: 502A

SO_2 Limit	SO_2 Units	Applicable Regulation
≤ 3.5	lb/10^6 Btu heat input	SC Std. 1
≤ 1.2 [1]	lb/10^6 Btu heat input on coal	NSPS Db
≤ 1.2 [1]	lb/10^6 Btu heat input on coal	SC Std. 7 (PSD)
≤ 0.5 [1]	lb/10^6 Btu heat input on oil (No. 6, No. 5, No. 2 fuel oil or on specification used oil/debris	NSPS Db
≤ 0.5 [1]	lb/10^6 Btu heat input on oil (No. 6, No. 5, No. 2 fuel oil or on specification used oil/debris	SC Std. 7 (PSD)
≤ 0.3 [1]	lb/10^6 Btu heat input on bark/wood waste or tire-derived fuel (TDF)	NSPS Db
≤ 0.3 [1]	lb/10^6 Btu heat input on bark/wood waste or tire-derived fuel (TDF)	SC Std. 7 (PSD)
≤ Prorated [1]	lb/10^6 Btu heat input on coal/oil mixture	NSPS Db
≤ Prorated [1]	lb/10^6 Btu heat input on coal/oil mixture	SC Std. 7 (PSD)
≤ 500	tpy from fuel burning (coal, oil/oil debris, TDF, bark/woodwaste)	SC Std. 7 (PSD)

≤ = less than or equal to
lb/10^6 Btu heat input = pounds per million British Thermal Units heat input
tpy = tons per year
Notes: Short term limits

When burning coal in combination with fuel oil and/or wood, this source shall not discharge into the atmosphere any SO_2 emissions which contain in excess this prorated standard using the following formula (calendar month period):

$$PSSO_2 = [x(0.3) + y(0.5) + z(1.2)]/(x + y + z) \qquad \text{[Equation 07.6EQ1]}$$

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where:
- $PSSO_2$ = The prorated standard for sulfur dioxide when burning different fuels simultaneously, lbs per million Btu heat input derived from all fossil fuels fired or from fossil fuels and wood residue fired
- x = The fraction of total heat derived from bark/wood waste and TDF
- y = The fraction of total heat input derived from liquid fossil fuel
- z = The fraction of total heat input derived from solid fossil fuel

The affected source is subject all of the limits above and all applicable requirements of SC Std. 1, SC Std. 7, and NSPS D. The short term limits are based on 3-hour block averages and the longer term limits are based on 12-month rolling averages. The SC. Std. 7 (PSD) emission limitations with the inherent wood fly ash scrubbing for the TDF and the associated fuel monitoring (maximum of 4 tons per hour TDF co-fired with a minimum of 25 ton per hour wood) are considered BACT for this source.

Testing: Initial source testing required by construction permit 1900-0046-DD [TDF fuel burning]-The bark/woodwaste and TDF firing rate during the initial or latest SO_2 test become the facility's firing rate limits for TDF until the next source test shows compliance at a different levels. Ongoing SO_2 testing is required every two years and shall be used to update the range of maximum TDF use and minimum bark/woodwaste firing (when TDF being added.

Source testing shall be conducted once every two (2) years in accordance with SC Regulation 61-62.1, Section IV - Source Tests and Federal requirements, when applicable. EPA Method 6-6C will be used to show compliance. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. SO2 compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. *[SC Reg. 61-62.5, Std. 4, Section XII(A)]*

Monitoring/Record Keeping/Reporting/Other:
(A1): Fuel Use- The affected sources are permitted to burn only the following fuels:

Table 7.6.T2 Permitted Fuels/Streams to Source for 502A

Permitted Fuel	**Maximum Sulfur Content (% by wt.)**	**Comment**
Coal		As limited below
No. 6 fuel oil (very low sulfur)	very low sulfur	As limited below
No. 5 fuel oil (very low sulfur)	very low sulfur	As limited below
No. 2 fuel oil (very low sulfur)	very low sulfur	As limited below
Wood waste/Bark		
Tire-derived fuel (TDF)		See Condition 07.14 for limitations
Tire-derived fuel (TDF)		See Condition 07.14 for limitations
Spec oil and spec oil debris		Spec Oil definition (See Condition 07.13 limitations)
Permitted Streams to 502A		

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Concentrated non-condensable TRS gases		See Condition 07.15 for limitations
Dilute non-condensable TRS gases		See Condition 07.15 limitations
High volume low concentration (HVLC) gases		See Condition 07.15 and MACT.1 for limitations
Low volume high concentration (LVHC) gases		See Condition 07.15 and MACT.1 for limitations
Rectified methanol		See Condition 07.14 for limitations

Permitted coal usage shall also include the following synfuel:
- coal with HES binder (petroleum emulsion-MSDS identification AMI-403)
- coal with NALCO 9838 binder (water based vinyl polymer)
- coal with Dow Latex 298NA binder (latex emulsion in water)
- coal with CLC-3 binder (water based emulsion with tall oil pitch, crude tall oil, fatty acids, and emulsifier)

A chemical analysis or manufacturers' certifications to show type and content of the binder shall be maintained by the facility on all shipments of synfuel received. No other requirements for synfuel are required at this time.

The use of any other substances as fuel is prohibited without prior written approval from the Bureau. The Department may allow the site-specific definition of bark/woodwaste to be expanded on a case by case basis to include renewable energy resources approved by the department under SC Standard 3, Section I(J)(2).

The owner or operator shall record and maintain records of the amounts and types of each fuel combusted by the affected source. The amount and type of fuel combusted shall be recorded daily, and maintained on site.

(A2) Annual Fossil Fuel Capacity Factor-In order to support the NSPS Db and SC Std. 7 SO_2 limits, the affected source is limited to an annual fossil fuel (coal and/or fuel oil) capacity factor of 30 percent or less based on a 12-month rolling average. The owner or operator shall use the amounts of each fossil fuel combusted each month to calculate to calculate a new annual capacity factor on a 12 -month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. Records of the capacity factors along with supporting data and calculations shall be kept on site. The Bureau shall be notified within 30 days of any exceedance of the fossil fuel capacity factor limitation.

(B): Fuel Oil Sulfur Content -In order to show compliance with the SO_2 emission limitation of less than or equal to 0.5 lb/Million Btu when oil is combusted, and the very low sulfur oil requirement of NSPS Db, fuel oil certification for sulfur content shall be obtained for each batch of fuel oil received and stored on site for use in No. 2 Power Boiler. Certification records shall be kept on site, the Bureau shall be notified within 30 days of any shipments used in the affected source above the low sulfur requirement.

(C): Coal Sulfur Content- In order to show compliance with the SO_2 emission limitation of less than or equal to 1.2 lb/Million Btu when coal is combusted, coal certification for sulfur content shall be obtained for each batch of coal received and stored on site.

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			(D): Fuel/Emissions Monitoring-The owner or operator shall use the fuel usage records, Bureau approved emission factors, source test data and vendor certification data and any other records necessary to determine source specific emissions for all annual and short term limitations for SO_2. [Emission factors should be submitted to Engineering Services and source test data to Source Evaluation]. Emissions shall be calculated on a monthly basis, and a 12-month rolling sum shall be calculated for annual emissions. The short term emissions and the twelve month rolling sum shall not exceed the limitations in Table 07.6.T1 above. For multiple fuels monthly calculations shall be performed using daily fuel oil, coal, TDF, bark/woodwaste and spec oil consumption to show compliance with SO_2 emissions to be less than or equal to the SO_2 standard using equation 07.4.EQ1 above. Quarterly summary reports of monthly 12-month rolling sums of SO_2 emissions and any variances from the established parameters and or limits as well as appropriate corrective action taken shall be submitted to the Bureau.
07.7	501A	•NO_X •*SC Std. 7* •*NSPS D*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 Power Boiler (501A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* □ *[NSPS 40 CFR 60, Subparts A {General Provisions};D {Standards Of Performance For Fossil-Fuel Fired Steam Generators For Which Construction Is Commenced After August 17, 1971}; and SC Reg. 61-62.60, Subparts A and D (NSPS D)]* The affected source is subject to 1, NSPS D, and SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT) Nitrogen Oxides (NO_X) shown in Table 07.7.T1 below: **Table 07.7.T1 NOx Limitations for ID 07: 501A** **NOx Limit** / **NOx Units** / **Applicable Regulation** ≤ 0.7 / lb/10^6 Btu heat input / SC Std. 7 (PSD) ≤ 0.7 / lb/10^6 Btu heat input / NSPS D ≤ 1518 / tpy / SC Std. 7 (PSD) ≤ = less than or equal to lb/10^6 Btu heat input = pounds per million British Thermal Units heat input tpy = tons per year **Testing:** See Below. **Monitoring/Record Keeping/Reporting/Other:** **(A): Fuel Use**-See Condition 07.5 **(B): NO_X Continuous Monitoring**-The owner or operator shall calibrate, maintain and operate a continuous emissions monitoring system (CEMS) for measuring the concentration of NO_X emissions and the percent carbon dioxide (CO_2) in gases discharged to the atmosphere and record the output of the system in accordance with the NO_x SIP regulations. The CEMS must meet the requirements of 40 CFR 60, Appendix B, Performance Specifications 2 and 3 as well as meet the calibration, operation, maintenance, quality control/quality assurance requirements of SC Regulation 61-62.96.

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			In lieu of the monitoring system the owner or operator shall conduct an annual source tes in accord ance with SC Regulation 61 -62.1, Section IV -"Source Tests" and Federal requirements. Semiannual reports of any variances from established parameters and any corrective action taken shall be submitted to the Bureau. **(C): PSD Annual Emission Monitoring -** See Facility Wide Condition FW.3 (Part 5, Section D)for record keeping and reporting requirements for the affected source (501A).
07.8	502A	•NO_X •*SC Std. 7* •*NSPS D*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* ❑ *[NSPS 40 CFR 60, Subparts A {General Provisions}; Db {S tandards Of Performance For Fossil-Fuel Fired Steam Generators For Which Construction Is Commenced After August 17, 1971}; and SC Reg. 61-62.60, Subparts A and Db (NSPS Db)]* The affected source is subject to NSPS Db, and SC Std. 7 prevention of significa nt deterioration (PSD) best available control technology (BACT) Nitrogen Oxides (NO_X) shown in Table 07.8.T1 below: **Table 07.8.T1 NO_X Limitations for ID 07: 502A** **NO_X Limit** | **NOx Units** | **Applicable Regulation** ≤ 0.5 | lb/10^6 Btu heat input on coal | SC Std. 7 (PSD) **Table 07.8.T1 NO_X Limitations for ID 07: 502A** **NO_X Limit** | **NOx Units** | **Applicable Regulation** ≤ 0.5 | lb/10^6 Btu heat input on coal | NSPS Db ≤ 0.3 | lb/10^6 Btu heat input on oil/wood waste/TDF | SC Std. 7 (PSD) ≤ 0.3 | lb/10^6 Btu heat input on oil/wood waste/TDF | NSPS Db 657 | tpy | SC Std. 7 (PSD) ≤ = less than or equal to lb/10^6 Btu heat input = pounds per million British Thermal Units heat input tpy = tons per year **Testing:** Not Required. **Monitoring/Record Keeping/Reporting/Other:** **(A): Fuel Use-**See Condition 07.6. **(B): NO_X Continuous Monitoring/Record Keeping/Reporting-**The owner or operator shall calibrate, maintain and operate a continuous emissions monitoring system (CEMS) for measuring nitrous oxides NO_X discharged to the atmosphere and record the output of the system. The continuous monitoring system shall be operated and data recorded durin all periods of operation of the affected facility except for CEMS breakdowns and repirs. Data is recorded during calibration checks, and zero and span adjustments. The CEMS

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			must meet the requirements of 40 CFR 60, Appendix B, Performance Specifications 2 and 3 as well as meet the calibration, operation, maintenance, quality control/quality assurance requirements of NSPS 40 CFR 60, Appendix F and §60.13. [NSPS 40 CFR 60.48b(b)] When nitrogen oxides emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems Method 7 -7E to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day in at least 22 out of 30 successive steam generating unit operating days. The facility shall record daily per §60.49b(g). Quarterly reports including a summary report, any variances from the established parameters, appropriate corrective action taken, and the information required by §60.49b (g) taken shall be submitted to the Bureau. **(C): PSD Annual Emission Monitoring** -See Facility Wide Condition FW.3 (Part 5, Section D)for record keeping and reporting requirements for the affected source (501A).
07.9	501A	•NO_X •*Budget Trading*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No. 1 Power Boiler (501A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.96 {NO_x Budget Trading Program}]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** The owners and operators, and to the extent applicable, the NO_X authorized account representative or alternate account representative of a NOx Budget unit, shall comply with the monitoring and reporting requirements as provided in subpart H of SC Regulation 61-62.96 and in subpart H of 40 CFR part 75. For purposes of complying with such requirements, the definitions in SC Regulation 61-62.96.2 and in 40 CFR part 72 section 72.2 shall apply, and the terms "affected unit," "designated representative," and "continuous emission monitoring system" (or "CEMS") in 40 CFR part 75 shall be replaced by the terms "NOx Budget unit," "NOx authorized account representative," and "continuous emission monitoring system" (or "CEMS"), respectively, as defined in SC Regulation 61-62.96.2. The NO_X authorized account representative or alternate account representative shall comply with all record keeping and reporting requirements in SC Regulation 61-62.96.74 and with the requirements of SC Regulation 61-62.96.10(e). During the Ozone season (May through September) Quarterly reports, as specified in SC Regulation 61-62.96.74(d), shall be submitted to EPA Clean Air Markets Division (submitted electronically) and to the Bureau. Unless otherwise provided, the owners and operators of the NOx Budget source and each NOx Budget unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Bureau or the EPA. (i) The account certificate of representation for the NO_X authorized account representative for the source and each NO_X Budget unit at the source

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			and all documents that demonstrate the truth of the statements in the account certificate of representation, in accordance with Section 96.13; provided that the certificate and documents shall be retained on site at the source beyond such 5 -year period until such documents are superseded because of the submission of a new account certificate of representation changing the NO_X authorized account representative. (ii) All emissions monitoring information, in accordance with subpart H of this regulation; provided that to the extent that subpart H of this regulation provides for a 3 -year period for record keeping, the 3 -year period shall apply. (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the NO_X Budget Trading Program. (iv) Copies of all documents used to complete a NO_X Budget permit application and any other submission under the NO_X Budget Trading Program or to demonstrate compliance with the requirements of the NO_X Budget Trading Program.
07.10	501A	•CO •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Power Boiler (501A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* The affected source is subject to SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT) Carbon Monoxide (CO) limits shown in Tabl 07.10.T1 below: **Table 07.10.T1 CO Limitations for ID 07: 501A** **CO Limit** | **CO Units** ≤ 0.11 | lb/10^6 Btu heat input ≤ 239 | tpy lb/10^6 Btu heat input = pounds per million British thermal units heat imput tpy = tons per year ≤ = less than or equal to **Testing:** Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable SC Std. 7 CO emission limits for the affected source (501A. Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 10 will be used to show compliance with CO. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. CO compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stac

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Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. **Monitoring/Record Keeping/Reporting/Other:** **(A): Fuel Use-(A):** See Condition 07.5 **(B): PSD Annual Emission Monitoring-**See Facility Wide Condition FW.3 for record keeping and reporting requirements.
07.11	502A	•CO •VOC •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* The affected source is subject to SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT) Carbon Monoxide (CO) limits shown in Tabl 07.11.T1 below: **Table 07.11.T1 CO and VOC Limitations for ID 07: 502A** **Pollutant** | **Pollutant Limit** | **Pollutant Units** CO | ≤ 1 | lb/10^6 Btu heat input CO | ≤ 2190 | tpy VOC | ≤0.1 | lb/10^6 Btu heat input VOC | ≤219 | tpy lb/10^6 Btu heat input = pounds per million British thermal units heat input tpy = tons per year ≤ = less than or equal to **Testing:** Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable SC Std. 7 CO and VOC emission limits for the power boilers. Source testing shall be conducted every two years (2) in accor dance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 10 will be used to show compliance with CO, and EPA Method 25/25A will be used to show compliance with VOC. Testing shall be conducted under worst case conditions burning tire-derived fuel. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation-6 62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. CO and VOC compliance shall be determined by averagin the test run emission rates over the test run durations as specified in the required test protocol. **Monitoring/Record Keeping/Reporting/Other: P roduction/Annual Emissions Monitoring-** **(A): Fuel Use-**See Condition 07.6. **(B): PSD Annual Emission Monitoring -**See Facility Wide Condition FW.3 (Part 5, Section D)for record keeping and reporting requirements for the affected source (502A).

Conditions For Unit ID 07 – Power Boilers

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
07.12	502A	•H_2SO_4 •Fluorides •*SC Std. 7*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): *[SC Reg. 61-62.5, Standard No. 7 {PSD} (SC Std. 7)]* The affected source is subject to SC Std. 7 prevention of significant deterioration (PSD) best available control technology (BACT) Sulfuric Acid (H2SO4) and Fluoride limits shown in Table 07.12.T1 below: **Table 07.12.T1 H_2SO_4 and Fluoride Limitations for ID 07: 502A** **Pollutant** | **Pollutant Limit** | **Pollutant Units** H_2SO_4 | ≤ 0.0125 | lb/10^6 Btu heat input H_2SO_4 | ≤ 8.2 | tpy Fluorides | ≤0.00548 | lb/10^6 Btu heat input Fluorides | ≤3.61 | tpy lb/10^6 Btu heat input = pounds per million British thermal units heat input tpy = tons per year ≤ = less than or equal to **Testing:** Periodic source testing will be used to show reasonable assurance of continuing compliance with the applicable SC Std. 7 H_2SO_4 and Fluoride emission limits for the power boilers. Initial source testing for these limits shall be required within 180 days of beginning to burn coal. Source testing shall be conducted every four years (4) in accordance with SC Regulation 62.1, Section IV and Federal requirements, when applicable. EPA Method 8 will be used to show compliance with H_2SO_4, and EPA Method 26 or 26A will be used to show compliance with Fluoride. Testing shall be conducted under worst case conditions burning tire-derived fuel and coal. Alternative test methods may be allowed, provided Bureau approval is granted during the test plan submittal and approval process described in SC Regulation 61-62.1, Section IV - Source Tests and 61-62.70.7 - Permit Issuance, Renewal, Reopenings and Revisions, as appropriate. H_2SO_4 and Fluoride compliance shall be determined by averaging the test run emission rates over the test run durations as specified in the required test protocol. If an emission unit exceeds fifty (50) percent of its emission limit during a stack test, stack tests shall be scheduled and conducted annually. Upon demonstration that the source is operating under 50 percent of its limit, as shown by two consecutive annual stack tests in which emissions are less than 50% of the standard, the source may resume stack testing every four (4) years. **Monitoring/Record Keeping/Reporting/Other:** **(A): Periodic Monitoring:** Source testing schedule used for periodic compliance monitoring. (See Testing above). **(B): Fuel Use**-See Condition 07.06.

Conditions For Unit ID 07 – Power Boilers

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			(C): PSD Annual Emission Monitoring -See Facility Wide Condition FW.3 (Part 5, Section D)for record keeping and reporting requirements for the affected source (502A).
07.13	501A 502A	•Used oil •*SC Std. 3*	**Limits/Standards [State Only: Yes]:** The following are affected source(s) for this condition: •No. 1 Power Boiler (501A), •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)]* The facility is subject to applicable requirements of SC Std. 3 when burning used oil. The affected sources are allowed to burn specification used oil (spec oil) that is purchased or generated on-site. Spec oil is oil that has been refined from crude or synthetic oil and as a result of use, storage, or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties, but which may be suitable for further use and may be economically recyclable. This also includes absorbent material contaminated with used oil such as oily rags or absorbent blankets. Spec oil burned in the combination boilers must meet the following specifications: **Table 07.13.T1-Standard 3 Specification Oil Limits for ID 06: 501A and 502A** **Pollutant** – **Specification Oil Limit** arsenic – ≤ 5 parts per million (ppm) maximum cadmium – ≤ 2 parts per million (ppm) maximum chromium – ≤ 10 parts per million (ppm) maximum lead – ≤ 100 parts per million (ppm) maximum Nickel – ≤ 120 parts per million (ppm) maximum Total halogens* – ≤ 4000 parts per million (ppm) maximum Flash point – > 100 ^{O} F minimum ppm = parts per million *Used oil containing more than 1000 parts per million total halogens is presumed to be a hazardous waste. The burden of proof that this is not true rests with the user. For these emission limitations , the procedures in South Carolina Regulations 61-62.5, Standard 3, Section V , A and H shall be used to define and quantify compliance with requirements for these units.*[SC Reg. 61-62.1, Section I(91) {Definitions}; SC Reg. 61-62.5, Std. 3, Section I]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** The affected sources are permitted to burn spec oil, which is subject to SC Std. 3 requirements. A spec oil provider certification shall be obtained for each batch of spec oil received and stored on site. Each batch of spec oil that is to be burned must be analyzed for the following: □ Classified as hazardous or non-hazardous □ Spec Oil or non Spec Oil □ Heat value; total halogen; percent nitrogen; percent sulfur Each batch of spec oil that is to be burned must be characterized to determine if it is hazardous or non-hazardous and to identify by analysis or special knowledge of the oil (MSDS, waste profiles, etc.). For each batch of used oil that is generated on site and is to be burned on site, an annual analysis (from each source that has generated the used oil) shall be performed for the following:

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			❑ Classified as hazardous or non-hazardous ❑ Spec Oil or non Spec Oil ❑ Heat value; total halogen; percent nitrogen; percent sulfur Records of all analyses shall be maintained on site. Semiannual reports of any variances from established parameters/limits during the reporting period shall be submitted to the Bureau. Analytical methods shall be in accordance with South Carolina Regulation 61-62.5, Standard 3, Section V(H), unless alternative methods are approved by the Manager of Technical Management , Bureau of Air Quality. [SC Reg. 61-62.5, Std. 3, Section V]
07.14	502A	•Metals and HCl •Rectified methanol •TDF •*SC Std. 3*	**Limits/Standards [State Only: Yes]** : The following are affected source(s) for this condition: •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ [SC Reg. 61-62.5, Standard No. 3 {Waste Combustion and Reduction} (SC Std. 3)] The affected source is permitted to burn rectified methanol and tire-derived fuel (TDF) and is subject to all applicable requirements of SC Std. 3 when burning this non-virgin fuel. When burning rectified methanol and/or TDF the limitations listed in Table 07.14.T1 below must be met: [SC Reg. 61-62.5, Std. 3, Sec. III(J)] **Table 07.14.T1 Waste Burning Limitations for ID 07: 502A** **Pollutant** — **Pollutant Limit [1]** nickel (Ni) — ≤ 6.0 x 10^{-3} lb/10^6 Btu total heat input cadmium (Cd) — ≤ 1.0 x 10^{-4} lb / 10^6 Btu total heat input chromium (Cr) — ≤ 7.4 x 10^{-4} lb / 10^6 Btu total heat input arsenic (As) — ≤ 1.7 x 10^{-3} lb / 10^6 Btu total heat input lead (Pb) — ≤ 5.0 x 10^{-3} lb / 10^6 Btu total heat input hydrochloric acid (HCl) — ≤ 0.45 lb / 10^6 Btu total heat input ≤ = less than or equal to Notes: 1. The total heat input value shall include the Btu from the waste and virgin fuel used for production **Testing:** Compliance with the emission limits shall be demonstrated within 180 days of beginning to burn TDF under worst case conditions through source testing for SO_2, CO, and VOC.SC Standard 3 metals and HCl (Compliance demonstration completed successfully). After the initial testing, source testing shall be required every two years fo SO_2, CO and VOC. The bark/wood waste and TDF firing rates during the SO_2 testing shall become the facility's new limits until the next SO_2 source test shows co mpliance at a different level. **Monitoring/Record Keeping/Reporting/Other:** **(A1) Fuel Rates-TDF:** The affected source is limited to a maximum of four (4) tons per hour of TDF combusted. The TDF bin must be configured to allow no more than 4 tons per hour TDF onto the bark belt and the owner or operator must maintain TDF bin rotor calibration data on site. This system will be set up with an interlock on the TDF bin rotor rpm. Any exceedences of the tph limit shall be recorded along with corrective acti taken and reason for excursion. These records will be maintained on site

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			The affected source is limited to a minimum of twenty five (25) tons per hour of bark/wo waste when TDF is being added to the bark conveyor. The owner or operator must recor the bark/woodwaste firing rate at least once every 15 minutes while TDF is being fed to t boiler. Using the bark feed instrument values, a correlated rate in tons per hour shall be determined. The bark/wood waste shall be at least the correlated rate of 25 tph when TDF is being added to the bark conveyor. This system will be set up with an interlock on the bark/woodwaste firing rate. Any time that the rate is below the tph limit while TDF is being added to the bark conveyor shall be recorded along with corrective action taken and reason for excursion. These records will be maintained on site. The affected source is permitted to burn up to 30,470 tons per year (tpy) of TDF. The owner or operator must record TDF usage quarterly and calculate yearly TDF usage on a 12- month rolling sum. Records of TDF consumption shall be maintained on site. Quarterly reports including a summary report and any variances from the established parameters and appropriate corrective action taken for the TDF use requirements shall be submitted to the Department. If no excursions have occurred during the quarter than this should be stated in the report. **(A2): Rectified Methanol Fuel Rates:** Rectified methanol may be fed to the affected source for use in the concentrated NCG burner at all times at a maximum of 2.0 gallons pe minute (gpm). If the boiler is being operated as the backup control device, then the boiler is not considered to be operating under normal conditions for this condition only. The owner or operator must record the actual fuel usage rates daily and determine a monthly block average. Any time that the rate is above the gpm limit for the monthly block avera shall be recorded along with corrective action taken and reason for excursion. These records will be maintained on site. Quarterly summary reports of any variances from established limits and any corrective action taken shall be submitted to the Bureau. If no excursions have happened in the quarter than this should be stated in the report. **(B): Waste Analysis** - An initial analysis of the rectified methanol was required. The analysis was completed and approved for the following: □ Classify all waste burned as either hazardous or non-hazardous. □ Each waste stream and each waste batch/shipment that is to be burned shall be identified by waste analysis or special knowledge of the waste for those air toxic compounds identified in SC Regulation 61-62.5, Standard 8. □ Analysis to determine heat value; total halogen; percent nitrogen; percent sulfur, percent ash □ Analysis to determine total metals, HCl and Btu content No other analysis is required because the calculated values were less than or equal to 50% of the emission standards. **(C): Other – Renewable Energy Resource** As Allowed under SC R. 61-62.5 Standard 3 Section I (J) (2), the facility may request an exemption from SC Standard 3 for a renewable energy resource by 1) submitting a site-specific chemical analysis of the renewable energy resource and/or source testing results the Department for review, and 2) providing additional documentation as necessary so tha the Department can confirm that the exemption will be protective of human health and th

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			environment. The Department reserves the right to deny a request for an exemption to Standard 3 for anyrenewable energy resources(s) that does not satisfy the above conditior The analysis should, at a minimum, be completed for the following: □ Classify all waste burned as either hazardous or non-hazardous. □ Each waste stream and each waste batch/shipment tha is to be burned shall be identified by waste analysis or special knowledge of the waste for those air toxic compounds identified in SC Regulation 61-62.5, Standard 8. □ Analysis to determine heat value; total halogen; percent nitrogen; percent sulfur, percent ash Analysis to determine total metals, HCl and Btu content
07.15	501A 502A	•TRS •*SC Std. 7* •*NSPS BB* •*CAM*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: •No. 1 Power Boiler (501A), •No. 2 Power Boiler (502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[South Carolina Regulation 61-62.5, Standard No. 7 {PSD} (SC Std. 7)];* □ *[NSPS 40 CFR 60, Subparts A {General Provisions}; BB {Standards Of Performance For Kraft Pulp Mills}; and SC Reg. 61-62.60 (NSPS BB)]* The No. 1 Power Boiler is permitted to combust the gaseous total reduced sulfur (TRS) emissions from NSPS 40 Subpart BB and SC Std. 7 regulated feed streams. The No. 2 Power Boiler is approved as a backup or secondary control device (with limitations) to th No. 1 Power Boiler and the No. 2 NCG Incinerator (ID 02 Equipment No. 331A). No minimum combustion temperature or residence time is required when the dilute NCG gas are combusted in either boiler. The affected streams and approved backup controls are listed in Table E-1 of ATTACHMENT E, which is considered a Federally enforceable par of this condition and permit. The No. 2 Power boiler shall serve as the backup control device for rectified methanol, concentrated NCGs and dilute NCGs incinerated as part of compliance with 40 CFR 60 Subpart BB and /or 40 CFR 63 Subpart S low volume high concentration (LVHC) and high volume low concentration (HVLC) gases from specific pulp ing system sources [Backup for No. 1 Power Boiler and No. 2 NCG Incinerator]. Use of the backup control device shall be allowed only under the following conditions: during periods of start -up, shutdown or malfunction of the primary control device, the Concentrated or Dilute NCG collection system, or the rectified methanol collection system as appropriate and during periods of maintenance, testing, or instrument calibration of the primary control device, t Concentrated or Dilute NCG collection system, or the rectified methanol collection system as appropriate. The use of No. 2 Power Boiler at any other time as a backup control devi shall be approved by the Bureau (No. 2 Power Boiler is the primary control device for 40 CFR 63, Subpart S high volume low concentration (HVLC) sources for the Oxygen Delignification system . **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A1): CAM Monitoring for TRS -**These sources are subject to 40 CFR 64, CAM and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64 for th affected sources, the indicator for TRS reduction will be the status of TRS venting or losses from the collection system of affected TRS sources required to be routed to boilers The owner or operator will keep records of all venting, bypasses, and/or TRS losses that

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			are exhausted to the atmosphere without being combusted in the boilers. The venting tim period and source of the venting event shall be determined and recorded. As approved by the Bureau, the owner or operator shall continue to operate, and maintain a flame failure system for these boilers provide positive indication of vents when there is an absence of a flame in a boiler. The status of affected TRS streams shall be used to provide assurance of compliance with SC Std. 7 and NSPS BB TRS reduction requirements. To meet the requirements of 40 CFR 64 the owner or operator shall maintain the parameters and indicator(s) [monitoring methods, sampling frequencies, date collection procedures, and averaging time(s) (where appropriate)] in Table 08.6.T1 below as well as take corrective action based on the excursion level(s) shown in ATTACHMENT H, Table H-1.

Table 0.7.15.T1 Power Boilers CAM Monitoring	
TRS Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
Monitoring: (NSPS BB) TRS Venting Status	**Frequency:** Continuous-The duration and source of each TRS venting episode determined
Data collection: Computer systems and manual record keeping	**Averaging:** No averaging

For streamlining purposes a CAM excursion will have the same definition as an excess emission defined by NSPS BB, that is, any TRS gases from affected sources that are not exposed to the specified combustion temperatures for a period of five (5) minutes (ventin of untreated gases).

Upon detecting an CAM excursion, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing any startup, shutdown or malfunction period and takin any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions).

For QA/QC purposes the owner or operator shall check the systems that indicate and/or record vents of TRS gases to the atmosphere on a weekly basis. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessar parts for routine repairs of the monitoring equipment.

A semiannual report for monitoring shall include, at a minimum, the information required under § 70.6(a)(3)(iii) and the following information as applicable:

- Summary information of the number, duration, source, and cause (including unknown cause, if applicable) of excursions,, as applicable, and the corrective actions taken; excess emissions for South Carolina Standard 4 and NSPS BB will also be reported.
- Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable);
- If applicable, a description of the actions taken to implement a Quality Improvement Pla (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the

Conditions For Unit ID 07 – Power Boilers			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			owner or opera tor shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring. The owner/ operator shall maintain records of monitoring data, monitoperformance data, excursions, corrective actions, and quality improvement plans. In addition, records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment.
07.16	501A 502A	•HAP Gases •*MACT S*	Affected Sources The affected sources are subject to applicable requirements of 40 CFR 63, Subparts A and S (MACT S) See Part 7.0 for MACT S limitations and requirements.
07.17	501A 502A	•Facility wide NOx •*SC Agreement*	The limitations and requirements for the facility wide nitrogen oxides (NO_x) emissions for affected sources, including these sources, are listed in Facility Wide Condition FW.2 (Part 5, Section D).

Table 5.15- Unit ID 08 – Miscellaneous				
Equipment ID	**Description**	**Installation Date/ Modification Date**	**Control Device ID**	**Stack ID**
560A	Wastewater Treatment	2/25/82	N/A	560AF
900A	Storage Tanks <10,000 gallons storing organic liquids	2/25/82	NA	900AV
900C	Landfill and Waste Handling	2/25/82	N/A	900CF
900D	Mill Roads	2/25/82	N/A	900DF
900E	Burn Pit	2/25/82	N/A	900EF

Table 5.16-Control Device(s) For Unit ID 08 – Miscellaneous			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
None	None	None	None

Conditions For Unit ID 08 – Miscellaneous			
Condition No.	**Equip ID**	**Regulated Pollutant/ Standard**	**Conditions**
08.1	900C 900D 900E	•Fugitive PM •*SC Std. 4* •*SC Std. 62.6*	**Limits/Standards [State Only: No]** :The following are affected source(s) for this condition: •Landfill and Waste Handling (900C),•Mill Roads (900D), •Burn Pit (900E) The affected sources(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): □ *[SC Reg. 61-62.6 {Control of Fugitive Particulate Matter} (SC Std. 62.6)]* □ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries {SC Std. 4}]* All non-enclosed operations shall be conducted in such a manner that a minimum of particulate matter (PM) becomes airborne . The owner or operator shall m aintain dust control on the premises by suitable measures. Oil treatment is prohibited. *[SC Reg. 61-*

Conditions For Unit ID 08 – Miscellaneous			
Condition No.	**Equip ID**	**Regulated Pollutant/ Standard**	**Conditions**
			62.5, Std. 4, Sec. X(A) and X(B); §61-62.6 **Testing**: Not Required **Monitoring/Record Keeping/Reporting/Other: Visual Emission Inspections (VE):** The owner or operator shall perform visual emissions inspections (VE) in accordance with the frequencies and procedures in Facility Wide Condition FW.4 (Part 5, Section D).
08.2	560A 900A	•Opacity •*SC Std. 4*	**Limits/Standards [State Only: No]** :The following are affected source(s) for this condition: Storage Tanks <10,000 gallons storing organic liquids (900A), Wastewater Treatment (560A) The affected sources(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ *[SC Reg. 61-62.5, Standard No. 4 {Emissions from Process Industries {SC Std. 4}]* Where construction or modification began on or before December 31, 1985, emissions (including fugitive emissions) shall not exhibit an opacity greater than 40% for the affected sources. **Testing**: Not Required **Monitoring/Record Keeping/Reporting/Other: Visual Emission Inspections (VE):** This equipment processes and/or stores various pulping process liquors or organics that normally have no potential visible emissions.

D. Facility Wide – LIMITATIONS, MONITORING AND REPORTING

Facility Wide Conditions			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
FW.1	02:311A 02:312A 02:351A 06:381A 07:501A 07:502A	•PM/PM_{10} •SO_2 •NO_X •CO •VOC •H_2SO_4 •Fluorides •Production •*PSD Significance SC Std. 7*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 Continuous Digester (ID 02:311A), •No. 2 Continuous Digester (ID 02:312A), •No. 1 Evaporator (ID 02:351A); •No. 1 Recovery Furnace (ID 06:381A); •No. 1 Power Boiler (ID 07:501A), •No. 2 Power Boiler (ID 07:502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ❑ [*SC Reg. 61-62.5, Std. 7(r)]* **Testing:** Not Required: **Monitoring/Record Keeping/Reporting/Other:** Past actual to future actual emissions calculations were used in the prevention of significant deterioration review for several construction permits at the facility. The use of these calculations requires record keeping as specified in South Carolina Regulation 61-62.5, Standard 7(r). The owner or operator shall maintain the following information for the construction permits listed below:

Facility Wide Conditions

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			☐ A project description ☐ Identification of the emissions unit(s) whose emissions of a regulated new source review (NSR) pollutant could be affected by the project; and ☐ A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under paragraph South Carolina Regulation 61-62.5, Standard No. 7(b)(41)(ii)(c) and an explanation for why such amount was excluded, and any netting calculations. In addition, the owner or operator shall determine the emissions of pollutants listed in Table FW.1.T1 below for each construction permit using appropriate production information for the emission units affected directly and indirectly by these projects. The actual annual emissions shall be calculated in tons per year on a calendar year basis. Records of the emissions along with the supporting data shall be kept for the required period and submitted to the Bureau on request. Engineering Services shall be notified in writing if any actual emissions increase to a level that would have triggered a PSD review based on the base line and contemporaneous emissions submitted with the construction permit application. In addition, Engineering Services shall be notified of any increase (as compared to the emission factors submitted in the construction permit application) in the emissions factors used for annual emission rate calculations. **Table FW.1.T1 PSD Significance Monitoring** **Construction Permit** / **Pollutants/Parameters to be Monitored (after startup)** / **Monitoring Duration (years)** 1900-0046-DJ / PM/PM_{10}, SO_2, NO_X, CO, VOC, H_2SO_4, Fl / 10 1900-0046-DI / PM/PM_{10}, SO_2, NO_X, CO, VOC / 5 1900-0046-DF / Mill steam/mill pulp production / 5
FW.2	02: 331A 05:371A 05:372A 06:381A 06:382A 07:501A 07:502A	•NO_X •*SC Agreement*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 2 NCG Incinerator (ID 02:331A),•No. 1 Lime Kiln (ID 05:371A), •No. 2 Lime Kiln (ID 05:372A), •No. 1 Recovery Fu rnace (ID 06:381A), •No. 2 Recovery Furnace (ID 06:382A), •No. 1 Power Boiler (ID 07:501A), •No. 2 Power Boiler (ID 06:502A) The affected source(s) are subject to all applicable limits and requirements of the followi regulation(s) (reg.): ☐ *Memorandum or Agreement Between SC DHEC and International Paper (8/12/04)* In accordance with the Memorandum of Agreement between SC DHEC and International Paper, total Nitrogen oxides (NOx) emissions from the affected sources shall not exceed 4,155 tons per year, based on a twelve (12) month rolling sum. The regulatory limits of each affected individual source must continue to be met. **Testing**: Not further testing is required by the permit condition. **Monitoring/Record Keeping/Reporting/Other:** The owner or operator must record the actual monthly production rates, fuel use information for each fuel used, and any other information required to calculate NO_X annual emissions for the affected sources. This

Facility Wide Conditions

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			information shall be used, along with Department approved emission factors, site specific data, source test data and/or control efficiencies for each affected source to calculate a 12-month rolling sum of total NO_X emissions for affected sources (total of NOx emissions for all of the affected sources). [source test data submitted to Source Evaluation]. Records of all data and calculations shall be kept on site. Semiannual summary reports of any variances from the facility wide NO_X limitation and any corrective action taken shall be submitted to the Bureau.
FW.3	02:331A 03:401U 03:402A 05:360C 05:361F 05:371A 05:371C 05:372A 06:381A 06:381C 06:382A 06:382B 07:501A 07:502A	•PM •SO_2 •NO_X •CO •VOC •TRS •Fluorides •H_2SO_4 •*SC Std. 7*	**Limits/Standards [State Only: No]** The following are affected sources for this condition: No. 2 NCG Incinerator (02:331A); No. 1 Bleach Plant (03:401U), No. 2 Bleach Plant (03:402A); No. 1 Green Liquor Slaker (05:360C), No. 2 Green Liquor Slaker (05: 361F), Fresh Lime System (05:371C), No. 1 Lime Kiln (05:371A), No. 2 Lime Kiln (05:372A; No. 1 Recovery Furnace (06:381A), No. 1 Smelt Dissolving Tank (06:381C), No. 2 Recovery Furnace (06:382A), No. 2 Smelt Dissolving Tank (ID 06: 382B); No. 1 Power Boiler (07:501A), No. 2 Power Boiler (07:502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ☐ *[SC Reg. 61-62.5 Std. 7 {PSD}(SC Std. 7)]* ☐ *[SC Reg. 61-62.70.6(3) {Title V Content-Monitoring, Record Keeping , Reporting}]* **Testing:** See conditions for affected sources for any testing, if required. **Monitoring/Recordkeeping/Reporting/Other:** To demonstrate reasonable assurance of continuing compliance with applicable annual limitations for affected sources shown in Table FW.3.T1 below, the owner or operator must record the actual monthly production rates, fuel use information for each fuel used, and any other information required to calculate applicable emissions for each affected pollutant for the affected sources. This information shall be used, along with Department approved emission factors, site specific data (CEMS data and vendor certifications), test data and/or control efficiencies for each affected source to calculate a 12-monthly rolling sum each annual SC Std. 7 prevention of significant deterioration best available control technology limitation for each pollutant for each affected source. [Emission factors shall be submitted to Engineering Services and source test data shall be submitted to Source Evaluation]. Records of all data and calculations shall be kept on site.

Table FW.3.T1 Required Production and Annual Emissions Monitoring

ID	Equipment No.	Pollutant	Annual Limit (tpy)
02	331A	Sulfur dioxide (SO_2)	≤ 1971
02	331A	Carbon monoxide (CO)	≤ 800
02	331A	Nitrogen oxides (NO_X)	≤ 478
03	401U	Carbon monoxide (CO)	≤ 159
03	402A	Carbon monoxide (CO)	≤ 245
05	360C	Particulate matter (PM)	≤ 9
05	361F	Particulate matter (PM)	≤ 9
05	371C	Particulate matter (PM)	≤ 25
05	371A	Particulate matter (PM)	≤ 135
05	371A	Sulfur dioxide (SO_2)	≤ 31
05	371A	Nitrogen oxides (NO_X)	≤ 205

Facility Wide Conditions

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions

05	371A	Carbon monoxide (CO)	≤ 1553
05	371A	TRS	≤ 3
05	372A	Particulate matter (PM)	≤ 90

Table FW.3.T1 Required Production and Annual Emissions Monitoring

ID	Equipment No.	Pollutant	Annual Limit (tpy)
05	372A	Sulfur dioxide (SO_2)	≤ 40
05	372A	Nitrogen oxides (NO_X)	≤ 241
05	372A	Carbon monoxide (CO)	≤ 20
05	372A	Volatile organic compounds (VOC)	≤ 78
05	372A	TRS	≤ 4.5
06	381A	Particulate matter (PM)	≤215
06	381A	Sulfur dioxide (SO_2)	≤ 1593
06	381A	Carbon monoxide (CO)	< 246
06	381A	Nitrogen oxides (NO_X)	≤ 859
06	381A	Total reduced sulfur (TRS)	≤ 15
06	381C	Particulate matter (PM)	≤ 43
06	381C	Sulfur dioxide (SO_2)	≤ 12
06	381C	Total reduced sulfur (TRS)	≤ 7
06	382A	Particulate matter (PM)	≤ 286
06	382A	Sulfur dioxide (SO_2)	≤ 2200
06	382A	Carbon monoxide (CO)	≤ 2137
06	382A	Nitrogen oxides (NO_X)	≤ 1197
06	382A	Total reduced sulfur (TRS)	≤ 29.4
06	382B	Particulate matter (PM)	≤ 85.8
06	382B	Sulfur dioxide (SO_2)	≤ 27
06	382B	Total reduced sulfur (TRS)	≤ 7.2
07	501A	Particulate matter (PM)	≤ 217
07	501A	Sulfur dioxide (SO_2) [coal and oil]	≤ 2602
07	501A	Sulfur dioxide (SO_2) [NCG]	≤ 894
07	501A	Nitrogen oxides (NO_X)	≤ 1518
07	501A	Carbon monoxide (CO)	≤ 239
07	502A	Particulate matter (PM)	≤ 131
07	502A	Sulfur dioxide (SO_2) from fuel burning (coal, oil/oil debris, TDF, bark/wood waste)	≤ 500
07	502A	Nitrogen oxides (NO_X)	≤ 657
07	502A	Carbon monoxide (CO)	≤ 2190
07	502A	Volatile organic compounds (VOC)	≤ 219
07	502A	Sulfuric Acid (H_2SO_4)	≤ 8.2
07	502A	Fluorides (F-)	≤ 3.61

≤ = less than or equal to
tpy = tons per year

Semiannual summary reports of any variances from applicable annual limitations and any

Facility Wide Conditions

Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
			corrective action taken shall be submitted to the Bureau.
FW.4	01:303A 04:441A 04:441B 04:471A 04:472A 07:501B 07:502B 07:530A 09:900C 09:900D 09:900E	•*SC Std. 4* •*SC Std. 62.6* •*SC Std. 4* •*SC Std. 4* •*SC Std. 4* •*SC Std. 4* •*SC Std. 4* •*SC Std. 4* •*SC Std. 4* •*SC Std. 62.6* •*SC Std. 62.6* •*SC Std. 62.6*	**Limits/Standards [State Only: No]:** The following are affected source(s) for this condition: See Table FW.4.T1 below. See conditions for each emission unit for limitations. **Testing:** See conditions for each emission unit for testing requirements, if required. **Monitoring/Recordkeeping/Reporting/Other:** The owner or operator shall perform visual emission inspections (VE for the affected sources at the frequencie s in Table FW4.T1 below.

Table FW.4.T1 Facility Wide Visual Emissions Inspection (VE) Requirements

ID	Equip. No.	Pollutant	Equipment Description	VE Frequency
01	303A	Fugitive Opacity PM	Woodyard	Annual
04	441A	Opacity PM	Pulp Machine	Annual
04	471A	Opacity PM	No. 1 Paper Machine	Annual
04	472A	Opacity PM	No. 2 Paper Machine	Annual
07	501B	Opacity PM	Fly Ash System	Annual
07	502B	Opacity PM	Bark System	Annual
07	530A	Opacity PM	Coal System	Annual
08	900C	Fugitive	Landfill and Waste Handling	Annual
08	900D	Fugitive	Mill Roads	Annual
08	900E	Fugitive	Burn Pit	Annual [1]

Notes: 1. Inspect while burning if used.

VE means a qualitative observation of opacity during daylight hours where the inspector records results in a log, noting color, dura tion, density (heavy or light), and cause and corrective action taken for any abnormal emissions. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable abou t the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, an the presence of uncombined water. Logs shall be kept to record all visual inspections, including cause and corr ective action taken for any abnormal emissions and visual inspections from date of recording. The owner or operator shall submit semiannual summary reports of abnormal visual observations and corrective action taken to the Bureau..

PART 6.0 ADDITIONAL CONDITIONS

A. OPERATIONAL FLEXIBILITY

1. The following activities shall be allowed, without a construction permit, or without revising or reopening the operating permit with proper advanced notification unless otherwise specified by S.C. Regulation 61-62.70 or any other State or Federal requirement. The activity will not result in emissions that will exceed any limit in this permit or the facility's potential to emit; the activity itself is not considered a modification under 40 CFR Part 60, 61 or 63. 40CFR63 (MACT) related activities are not covered under this permitting flexibility condition.

As part of this permit flexibility procedure the facility shall keep an on-site implementation log (OSIL) to document all changes made under the procedure. The OSIL shall provide detailed contemporaneous information supporting the changes made under this procedure. The OSIL shall be readily available to the Bureau.

Existing emission limitations defined in an approved air permit are not exceeded or there is no increase in emissions at or above exemption thresholds.

Table 7.1 Operational Flexibility Changes Allowed with Notification and OSIL Record Keeping	
Condition Number	**Conditions**
1.	Replacement of permitted process equipment such as reactors, storage tanks, etc. with equipment identical in capacity, dimensions, and characteristics or with equipment that will have the same or lower emissions.
2.	Manufacture of new products in existing equipment.
3.	Additions of new raw material, and changes in raw material usage or formulation including paints and other coatings that do not necessitate construction or modification to existing equipment.
4.	Addition of control devices for the purpose of hygiene, safety, or other non-creditable decreases in emissions.
5.	Re-routing of stacks or any change in stack parameters (i.e. stack height, orientation, diameter, removal or addition of rain caps).
6.	Changes in the sequence of process operations.
7.	Short term trials (90days or less duration) of new product(s), new chemicals, additives, alternative fuels, equipment configuration, and/or equipment locations as long as the limitations and requirements in this permit are met.

A notice is required at least seven (7) days prior to beginning the actual activities authorized in the items above. This notice shall be submitted to the Engineering Services Division and District Air Section Manager by using the applicable form. A copy of the notice shall be kept in the On-Site Implementation Log (OSIL). The notification shall include but is not limited to the following information:

Table 7.2 Operational Flexibility Notification Requirements	
Condition Number	**Conditions**
i.	A brief description of the modification(s) and how it relates to the above pre-approved changes including any flow diagrams, equipment identification, etc. that help clarify the proposed changes.

Table 7.2 Operational Flexibility Notification Requirements	
Condition Number	**Conditions**
ii.	The date the modification(s) will occur.
iii.	Identification of what equipment/emissions units the modification(s) will affect. (Include Operating Permit unit identification, equipment identification, stack identification, etc.)
iv.	The schedule for the implementation of the modification(s).
v.	An applicability determination showing the proposed physical or operational change will not be a modification under 40CFR60, 40CFR61, or 40CFR63. An applicability determination showing the proposed physical or operational change will not be cause the facility or activity to be subject to South Carolina Regulation 61-62.5, Standard 5.1, or South Carolina Regulation 61-62.5, Standard 7.
vi.	Uncontrolled and controlled emissions calculations for all regulated air pollutants resulting from the activity and demonstration that when added to the existing emissions all permit limits will be met. This should include the increase and the facility-wide PTE uncontrolled and controlled emissions totals from the modification(s).
vi.	Demonstrate compliance with South Carolina 61-62.5, Standards 2, 7, and/or 8, or a statement indicating (including actual date) that compliance with these standards is demonstrated. Failure to demonstrate compliance with these standards will constitute an incomplete notice and will result in the cessation of modification.

A written notification from this Bureau will be provided only if the proposed activities are not consistent with the above conditions. The owner or operator must cease implementation of any modification if it is found to be inconsistent with the permit flexibility conditions, and may also be subject to possible enforcement action(s). The permittee assumes the risk of any financial loss resulting from implementing the modification(s) prior to receiving the Bureau's approval. Implementation of the modification(s) may be resumed upon receipt of written approval. Title V facilities must also have the OSIL certified by a responsible official annually.

2. The following operational changes shall be allowed without a construction permit and without written notification provided that: the modification(s) will not result in emissions that will exceed any limit in this permit or the facility's potential to emit; any existing equipment associated with this modification is not subject to regulation under 40 CFR Part 60 (Standards of Performance for New Stationary Sources), Part 61 (National Emission Standards for Hazardous Air Pollutants) or 63 (National Emission Standards for Hazardous Air Pollutants, also known as MACT Standards); the modification itself will not be subject to regulation under 40 CFR Part 60, 61 or 63; and compliance with South Carolina Regulation 61-62.5 Standards 2 (Ambient Air Quality Standards), 7 (PSD) and 8 (Toxic Air Pollutants) is demonstrated.

Table 7.3 Operation Flexibility Allowed Without Notification	
Condition Number	**Conditions**
1.	The operational changes in the physical dimensions, layout, configuration of equipment, arrangement or locations of process equipment to accommodate production needs as long as it does not affect air emissions or impact modeled stack parameters.
2.	Changes in the supplier of raw materials, fuels, additives, or paints and other coatings, as long as there are no increases in volatile organic compounds (VOC) content or increases in emissions from the change
3.	Change in operating parameters as long as they do not quantitatively affect air emissions or impact modeled stack parameters.
4.	Maintenance/repair activities at the facility that result in no net increase and do not trigger NSPS or PSD requirements. Some maintenance activities may trigger PSD and/or NSPS activities.

Table 7.3 Operation Flexibility Allowed Without Notification	
Condition Number	**Conditions**
5.	Any activity exempted in South Carolina Regulation 61-62.1 Sections II. Any activities that meet the "no notification" category are also exempt from notification under this permitting flexibility condition.
6.	Manufacture pulp and paper grades that do not necessitate construction or modification to the existing equipment and there are no increases in actual or potential emissions, or changes in regulatory requirements. For these types of changes all limitations and requirements of this permit must be met.

3. During periods when power boilers or other steam generating units are to be shut down, the owner or operator is permitted operate a rental package boiler, fired with No. 2 fuel oil, having a maximum capacity of 100,000 million Btu per hour, for up to thirty (30) consecutive days. A notification shall be submitted to the Bureau prior to operation of a rental package boiler. A summary report including dates of operation, type and quantity of fuel fired, and the maximum heat input capacity shall be submitted to the Bureau within thirty (30) days after shutdown of the rental package boiler. This information shall also be attached to required semiannual reports.

B. COMPLIANCE SCHEDULE [SC Regulation 61-62.70.5(c)(8)]

Not applicable at this time.

C. PERMIT SHIELD [SC Regulation 61-62.70.6(f)]

A copy of the "applicability determination" submitted with the Part 70 permit application is included as Attachment C. Compliance with the terms and conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance. The permittee shall also be shielded from any non-applicable requirements as agreed upon by the Bureau as specified in Attachment C with the exception of the following.

Regulations
SC Regulation 61-62.5 Standard 7 (PSD)

Nothing in the permit shield or in any Part 70 permit shall alter or affect the provisions of Section 303 of the Act, Emergency Orders, of the Clean Air Act; the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance; the applicable requirements of the Acid Rain Program, consistent with Section 408(a) of the Clean Air Act; or the ability of US EPA to obtain information from a source pursuant to Section 114 of the Clean Air Act. In addition, the permit shield shall not apply to emission units in noncompliance at the time of permit issuance, minor permit modifications (SC Regulation 61-62.70.7(e)(2)), group processing of minor permit modifications (SC Regulation 61-62.70.7(e)(3)), or operational flexibility (SC Regulation 61-62.70.7(e)(5)(i)), except as specified in SC Regulation 61-62.70.7(e)(5)(iii).

PART 7.0 NESHAP PART 63 REQUIREMENTS (MACT) [SC Regulation 61-62.63 National Emissions Standards for Hazardous Air Pollutants]; [40 CFR 63 National Emissions Standards for Hazardous Air Pollutants (NESHAP)] Section 7.A includes MACT requirements for 40 CFR 63, Subparts A, S, and. Whenever requirements of NESHAP 40 CFR Part 63 are referenced in this permit

the corresponding parts of SC Regulation 61-62.63 are also applicable.

Table 7.A.1- General 40 CFR Part 63 Conditions	
Condition Number	**Conditions**
7.A.1	This facility is subject to the provisions of 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAP), Subparts A -General Provisions [63.1 -63.19] and S -National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry [§63.440-441; §63.443; §63.445-446; §63.450; §63.453-455; §63.457; §63.1-63.10; §63.12-15] as well as SC Regulation 61-62.63, Subparts A-General Provisions and Subpart S-National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry. The applicable requirements Subpart S for the bleach plants was extended from April 16, 2001 to no later than April 15, 2004 by participation in the Voluntary Advanced Technology Incentives Program. The applicable requirements of Subpart S for the puling condensates was extended from April 16, 2001 to no later than April 15, 2002 by com pliance agreement between SCDHEC and International Paper. Whenever requirements of NESHAP 40 CFR Part 63 are referenced in this perm the corresponding parts of SC Regulation 61-62.63 are also applicable. Existing affected sources shall comply with t applicable provisions of Subparts A and S. Any new affected sources shall comply with the applicable requirement these Subparts upon initial start-up unless otherwise noted.
7.A.2	This facility is subject to the provisions of 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAP), Subparts A -General Provisions [§63.1 -15] and MM -National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills [§63.860-868] as well as SC Regulation 61-62.63, Subparts A-General Provisions and MM- National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills . Whenever requirements of NSPS 40 CFR Part 63 are referenced in this permit the corresponding parts of SC Regulation 61-62.63 are also applicable. Existing affected sources shall comply with the applicable provisions of Subparts A and MM. Any new affected sources shall comply with the applicable requirements of these Subparts upon initial start-up unless otherwise noted.
7.A.3	All Part 63 notifications and reports shall be sent to the South Carolina Department of Health and Environmental Control - Bureau of Air Quality (SC DHEC - BAQ) at the following address: **SC DHEC – BAQ** **Air Toxics Section** **2600 Bull Street** **Columbia, SC 29201**
7.A.4	All Part 63 notifications and the cover letters to periodic reports shall be sent to the United States Environmental Protection Agency (US EPA) at the following address: **US EPA, Region 4** **Air, Pesticides and Toxics Management Division** **61 Forsyth Street** **Atlanta, GA 30303**

B. NESHAP PART 63 SUBPARTS A [General Provisions]; S [NESHAP From The Pulp And Paper Industry](MACT S); and MM [NESHAP For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills](MACT MM]

Tables 7.B.1 and 7.B.2 lists the affected sources and control devices that have been identified in the facility's Notice of Compliance Status and the Title V Permit Application.

Table 7.B1- Affected Equipment for 40 CFR 63, Subparts A, S, and MM				
Equipment ID	**Description**	**Installation Date (Modification Date)**	**Control Device ID**	**Stack ID**
Unit ID ID 02 – Pulp Mill/Oxygen Delignification [(40 CFR 63, Subparts A and S)(§63.443)]				
311A	374,000 ADTP/yr No. 1 Continuous Digester System: (continuous digester; flash tanks; blow tank chip bin; steaming vessel,; low pressure feeder; relie gas condensers/coolers)	2/25/82	331A 501A 502A	331ASCE 501ASCE 502ASCE
312A	616,000 ADTP/yr No. 2 Continuous Digester System: (continuous digester; flash tanks; blow tank chip bin; steaming vessel,; low pressure feeder; relie gas condensers/coolers)	7/31/89	331A 501A 502A	331ASCE 501ASCE 502ASCE
321A	374,000 ADTP/yr No. 1 Brown Stock Washing System: (No. l-1 brownstock washer; No. 1 knotters, No. 1 rejects blend chest No. 1 rejects refiner feed chest; No. 1 low density brown stock chest; foam tank, No. 1-1 BSW filtrate tank)	2/25/82	501A 502A	501ASCE 502ASCE
322A	616,000 ADTP/yr No. 2 Brown Stock Washing System: (No. 2 -1 brownstock washer; No. 2 -2 brownstock washer; No. 2 rejects blend chest; No. 2 rejects refiner feed chest; No. 2 brownstock washer interstage chest; No. 2-1 BSW filtrate tank; No. 2-2 BSW pressate tank)	7/31/89	501A 502A	501ASCE 502ASCE
330A	No.1 Condensate Stripper System: (stripper feed tank; heat exchangers; stripper column; reflux flash tank)	2/25/82	331A 502A	331ASCE 502 ASCE
331A	No. 2 NCG Incinerator: (incinerator, incinerator condensate seal pot)	7/31/89		331ASCE
331A	NCG Condensate Tank	7/312/89	331A 331B 502A	331ASCE 502ASCE
331B	Methanol Rectification System: (rectifier column; condensers; heat exchanger; decanter; pump tank; methanol storage tank)	7/31/89	331A 331B 502A	331ASCE 502ASCE
340A	Turpentine System: (decanter; weir box; storage tank; standpipes)	2/25/82	331A 502A	331ASCE 502ASCE
351A	No. 1 Evaporator System: (multiple effect evaporators; condensers, heat exchangers; flash tanks; level tanks; vacuum system)	2/25/82	331A 501A 502A	331ASCE 501ASCE 502ASCE
352A	No.2 Condensate Stripper System: (stripper feed tank; heat exchangers; stripper column; reflux flash tank; condensers)	7/31/89	331A 331B	331ASCE

Table 7.B1- Affected Equipment for 40 CFR 63, Subparts A, S, and MM				
Equipment ID	**Description**	**Installation Date (Modification Date)**	**Control Device ID**	**Stack ID**
352B	No. 2 Evaporator System: (multiple effect evaporators; heat exchangers; flash tanks; condensers; concentrator; vacuum system; level tanks)	7/31/89	331A 501A 502A	331ASCE 501ASCE 502ASCE
401D	340,000 ODTP/yr No. 1 O_2-2 Washer Filtrate Tank	2/25/82 (2005)	502A	502ASCE
401E	340,000 ODTP/yr No. 1 O_2-1 Washer Filtrate Tank	2/25/82 (2005)	502A	502ASCE
401J	340,000 ODTP/yr No. 1 O_2 Blow Tank	2/25/82 (2005)	502A	502ASCE
401M	340,000 Twin Roll Pressate Tank	2/25/82 (2005)	502A	502ASCE
401N	340,000 ODTP/yr Two (2) No. 1 O_2 Washers	2/25/82 (2005)	502A	502ASCE
401V	340,000 ODTP/yr No. 1 O_2 Blend Chest	2/25/82 (2005)	502A	502ASCE
401W	340,000 No. 1 Twin Roll Presses	2/25/82 (2005)	502A	502ASCE
402C	560,000 ODTP/yr No. 2 O_2 Blow Tank/Interstage Chest	7/31/89 (2005)	502A	502ASCE
402D	560,000 ODTP/yr No. 2 O_2-1 Washer Pressate Tank	7/31/89 (2005)	502A	502ASCE
402E	560,000 ODTP/yr No. 2 O_2-2 Washer Pressate Tank	7/31/89 (2005)	502A	502ASCE
402H	560,000 ODTP/yr Two (2) No. 2 O_2 Washers	7/31/89 (2005)	502A	502ASCE
Unit ID 03 – Bleaching [(40 CFR 63, Subparts A and S)(§63.445)]				
401U	340,000 ODTP/yr No. 1 DED Bleach Plant: (chemical mixer; reaction tower; three washers; three seal tanks; second chemical mixer; second reaction tower) The E stage equipment (washer and seal tank) is not subject to MACT S	2/25/82 (12/29/99)	401U	401USCE
402A	560,000 ODTP/yr No. 2 DED Bleach Plant: (chemical mixer; reaction tower; two washers; three seal tanks; second chemical mixer; second reaction tower) The E stage equipment (washer and seal tank) is not subject to MACT. The No. 2 E Washer may be routed to the scrubber or vented separately.	7/31/89 (12/29/99)	402A	402ASCE
ID 05: Recausticizing [40 CFR 63, Subparts A and MM]				
371A	110,000 tpy CaO No.1 Lime Kiln	2/25/82	371A	371ASCE
372A	150,000 tpy CaO No. 2 Lime Kiln	7/31/89	372A	372ASCE
Unit ID 06 – Chemical Recovery [40 CFR 63, Subparts A and MM]				
381A	540,000 Tons BLS/yr No.1 Recovery Furnace	2/25/82	381A	381ASCE
381C	540,000 Tons BLS/yr No.1 Smelt Dissolving Tank	2/25/82	381C	381CSCE
382A	1,050,000 Tons BLS/yr No.2 Recovery Furnace	7/31/89	382A	382ASCE
382B	1,050,000 Tons BLS/yr No.2 Smelt Dissolving Tank	7/31/89	382B	382BSCE
Unit ID 07 – Power Boilers [(40 CFR 63, Subparts A and S)(§63.443 and §63.446)]				
501A	545 Million BTU/hr No.1 Power Boiler:	2/25/82	501A	501ASCE
502A	500 Million BTU/hr No.2 Power Boiler:	7/31/89	502A	502ASCE

Table 7.B.2-Control Device(s) For Affected 40 CFR 63, Subparts A, S, and MM Sources			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
40 CFR 63, Subpart S (§63.443 and §63.446)			

Table 7.B.2-Control Device(s) For Affected 40 CFR 63, Subparts A, S, and MM Sources			
Control Device ID	**Description**	**Installation Date/ Modification Date**	**Pollutant Controlled**
331A	No. 2 NCG Incinerator	7/31/89	HAP (methanol as surrogate for HAP)
501A	No.1 Power Boiler	2/25/82	HAP (methanol as surrogate for HAP)
502A	No.2 Power Boiler	7/31/89	HAP (methanol as surrogate for HAP)
330A	No. 1 Condensate Stripper System	2/25/82	HAP (methanol as surrogate for HAP)
330A	No. 2 Condensate Stripper System	7/31/89	HAP (methanol as surrogate for HAP)
331B	Methanol Rectification System	7/31/89	HAP (methanol as surrogate for HAP)
40 CFR 63, Subpart S (§63.445)			
401U	No. 1 Bleach Plant Scrubber	8/1/97	Cl_2 (Cl_2 surrogate for HAP
402A	No. 2 Bleach Plant Scrubber	7/31/89	Cl_2 (Cl_2 surrogate for HAP
40 CFR 63, Subpart MM			
381A	No. 1 Recovery Furnace ESP	2/25/82	PM (PM surrogate for HAP)
382A	No. 2 Recovery Furnace ESP	7/31/89	PM (PM surrogate for HAP)
381C	No.1 Smelt Dissolving Tank Scrubber	2/25/82 (1/93)	PM (PM surrogate for HAP)
382B	No.2 Smelt Dissolving Tank Scrubber	7/31/89 (11/95)	PM (PM surrogate for HAP)
371A	No.1 Lime Kiln Scrubber	2/25/82 (7/95)	PM (PM surrogate for HAP)
372A	No.2 Lime Kiln Electrostatic Precipitator (ESP)	7/31/89	PM (PM surrogate for HAP)

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
MACT.1	ID 02:		**Limits/Standards [State Only: No] :** The following are affected source(s) for this

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
	311A 312A 321A 321C 322A 322B 330A 331A 331B 340A 351A 352A 352B 401D 401E 401J 401M 401N 401V 401W 402C 402D 402E 402H ID 07: 501A 502A	•HAP (Pulping System Vents Collection and Treatment) •*MACT S*	condition: •No. 1 Continuous Digester System (02:311A), •No. 2 Continuous Digester System (02:312A), •No. 1 Brown Stock Washing System (02:321A), •No. 2 Brown Stock Washing System (02: 322A), •No.1 Condensate Stripper System(02: 330A), •No. 2 NCG Incinerator (02:331A), • Methanol Rectification System (02:331B), •Turpentine System (02:340A), • No.1 Evaporator System (02:351A), • No.2 Condensate Stripper System (02:352A), • No.2 Evaporator System (02:352B), •No.1 O_2-2 Washer Filtrate Tank (02:401D), •No.1O_2-1 Washer Filtrate tank (02:401E), •No. 1 O_2 Blow Tank (02:401J), •Twin Roll Pressate Tank (02:401M), •No. 1 O_2 Washers (02: 401N), •No. 1 O_2 Blend Chest (02:401V), •No. 1 Twin Roll Presses (02:401W), •No. 2 O_2 Blow Tank/Interstage Chest (02:402C), •No. 2 O_2 -1 Washer Pressate Tank (02:402D), •No. 2 O_2 -2 Washer Pressate Tank (02:402E), •No. 2 O_2 Washers (02:402H); •No. 1 Power Boiler (07:501A), •No. 2 Power Boiler (07:502A) The affected source(s) are subject to all applicable limits and requirements of the following regulation(s) (reg.): ☐ *[NESHAP 63 Subparts A {General Provision}: Part 63, Table 1; §§63.1 -63.15]; Subpart S {National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry} (MACT S):§§63.440-63.441; §63.443; §63.450; §§63.45363.455; §§63.457-63.459 ; and SC Reg. 61-62.63, Subparts A and S (MACT S)* ☐ *Alternate monitoring approval has been received MACT Subpart S requirements. LDAR inspections shall be done once per calendar month instead of every 30 days. Locations that are classified as unsafe or inaccessible are exempted from inspection/testing requirements and must be inspected at least once per permit term.* **(A): Pulping System Vent Treatment -** The gases containing hazardous air pollutants (HAP) from applicable affected pulping system vents sources as defined in §63.441 shall be enclosed and vented into a closed vent system and routed to a control device specified in §63.443 for the reduction of HAP. The enclosures and closed-vent system shall meet the requirements specified in §63.450. Specific affected low volume high concentration (LVHC) sources are collected and routed in the Concentrated NCG System to No. 2 NCG Incinerator for HAP reduction. The concentration of HAP gases in the outlet of the incinerator must by less than or equal to 2 parts per million by volume, corrected to 10 percent oxygen on a dry basis (ppmv (dry basis) @ 10% O_2). The specific affected sources that must be collected and routed to No. 2 NCG Incinerator are listed in Table E-2 of ATTACHMEMT E, which is considered a Federally enforceable part of this condition and permit. The No. 2 Power Boiler (ID 07 Equipment No. 502A) is an approved backup for combustion of HAP gases for these affected sources (Concentrated NCG System). There are no outlet HAP concentration limitations at the outlet of the boiler when the HAP gases are combusted in the boiler. Specific affected high volume low concentration (HVLC) and a subset of LVHC HAP sources are collected and routed in the Dilute NCG System to No. 1 Power Boiler or No. Power Boiler for HAP reduction. Gases from affected oxygen delignification sources are collected and routed in the O_2 NCG System to No. 2 Power Boiler. The No. 2 Power Boiler is an approved back up control device for No. 1 Power Boilerfor the Dilute NCG System. There is no back up control device for affected sources from the oxygen delignification. There are no outlet HAP concentration limitations at the outlet of the boilers when the HAP gases are combusted in the boilers. The specific affected sources that must be collected and routed to the each boiler are listed in Table E -2 of

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			ATTACHMEMT E, which is considered a Federally enforceable part of this condition an permit. In accordance with §63.443(a)(l)(ii)(B), control of HAP from the knotter systems is not required based on HAPs (methanol) emissions below the control threshold for knotter systems of 0.1 lb HAP (methanol) /ton of oven dried pulp. The specific affected *No. 1 and No. 2 Knotter System*sources (Knotter systems are part of ID 02 Equipment No. 321A and 322A) are listed in Table E-3 of ATTACHMENT E, which is considered a Federally enforceable part of this condition and permit. The threshold below which knotter and screening systems are not required to be controlled was demonstrated by results of site - specific methanol testing conducted in during May, 2005. The No. 2 Power boiler shall serve as the backup control device for rectified methanol concentrated NCGs and dilute NCGs incinerated as part of compliance with 40 CFR 60 Subpart BB and /or 40 CFR 63 Subpart S low volume high concentration (LVHC) and high volume low concentration (HVLC) gases from specific pulping system sources [Backup for No. 1 Power Boiler and No. 2 NCG Incinerator]. Use of the backup control device shall be allowed only under the following conditions: during periods of start -up, shutdown or malfunction of the primary control device, the Concentrated or Dilute NCG collection system, or the rectified methanol collection system as appropriate and during periods of maintenance, testing, or instrument calibration of the primary control device, t Concentrated or Dilute NCG collection system, or the rectified methanol collection syste as appropriate. The use of No. 2 Power Boiler at any other time as a backup control devi shall be approved by the Bureau. No. 2 Power Boiler is the primary control device for 40 CFR 63, Subpart S high volume low concentration (HVLC) sources for the O xygen Delignification system. In addition, rectified methanol may be fed to the affected source for use in the Concentrated NCG burner at all times at a maximum of 2.0 gallons per minute (gpm) calendar month average. **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): Bypass Valves-**The primary computer-controlled bypass valves (emergency vent valves) that by design could divert vent streams containing HAP to the atmosphere without meeting the emission limitations are listed in Table MACT.1.T1 below.

Table MACT.1.T1 Closed Vent System Emergency Vent Valves	
Source	**Vent Valve Number**
Concentrated NCG System (MACT S LVHC Sources)	331-Z1-056
Dilute NCG System (MACT S LVHC and HVLC Sources)	331-Z1-085
O2 NCG System (MACT HVLC Sources)	331-Z1-245

Each bypass line in the closed-vent system that could divert vent streams containing HAP to the atmosphere without meeting the emission limitations for the relevant emission standard shall comply with either of the following requirements:

- On each bypass line, the owner or operator shall install, calibrate, maintain, and operate according to the manufacturer's specifications a flow indicator that is capable of taking periodic readings at least once every 15 minutes. The flow indicator shallbe installed in

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			the bypass line in such a way as to indicate flow in the bypass line; or For bypass line valves that are not computer controlled, the owner or operator shall maintain the bypass line valve in the closed position with a car seal or a sealed on the valve or closure mechanism in such a way that valve or closure mechanism cannot be opened without breaking the seal. For bypass line valves that are not computer controlled , the valve or closure mechanism shall be inspected at least once per calendar month (approved alternative monitoring) to ensure that the valve is maintained in the closed position and the emission point gas stream is not diverted through the bypass line. The owner or operator shall set the flow indicator on each bypass line to provide a record of the presence of gas stream flow in the bypass line at least once every 15 minutes. [§63.454)(e)] Computer-controlled valves with position switches are used to meet the requirement of a bypass line flow meter. **(B): No. 2 NCG Incinerator [331A]Temperature Monitoring-** The owner or operator shall continue to calibrate, certify, operate, and maintain according to the manufacturer's specifications, a continuous parameter monitoring system (CPMS) to measure the temperature in the firebox or in the ductwork immediately downstream of the firebox and before any substantial heat exchange occurs in *No. 2 NCG Incinerator(331A)*. The CPMS shall include a continuous recorder and operated as shown in Table 07.1.T2 below. **Table MACT.1.2 MACT S Parameter Monitoring Methods for Incinerator 331A** **HAP Monitoring Method/Requirements** | **Sampling Frequency [Averaging Time]** **Monitoring**: Parameters: Incinerator Temperature CPMS | **Frequency:** Minimum of one cycle of sampling, analyzing, and recorded every successive 15-minute period **Monitor requirements:** 40CFR 63.8 and §63.10 | **Averaging Time**: No averaging The owner or operator has established incinerator temperature values to demonstrate assurance of reasonable continuing compliance with the concentration of HAP gases in the outlet of the incinerator less than or equal to 20 parts per million by volume, corrected to 10 percent oxygen on a dry basis (See ATTACHMENT H, Table H -1). Incinerator temperature operating values may be reestablished using t he procedures in §63.453(n). Any reestablished temperature values along with the information required by §63.453(n) must be submitted to Engineering Services, Bureau of Air Quality for approval. The owner or operator shall operate the incinerator in a manner consistent with the minimum or maximum (as appropriate) operating parameter value, and operation of the control device below minimum operating parameter values or above maximum operating parameter values established shall constitute a violation of the applicable emission standard and be reported as a period of excess emissions. Parameter excursions, where due to startup, shutdown, or malfunction (SSM) (subject to SSM Plan requirements) are allowed under MACT S. **(C): Excess Emissions and Reporting -**Periods of excess emissions (periods when

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			affected source vent streams containing HAP are emitted to the atmosphere without meeting the HAP emission reduction limitations shall not be a violation provided the time of excess emissions (excluding periods of SSM) divided by the total process operating time in a semiannual reporting period does not exceed one per cent (1%) for control devices used to reduce low volume high concentration (LVHC) HAP gas steams and four percent (4 %) for control devices used to reduce both LVHC and high volume low concentration (HVLC) HAP gas steams. This requirement applies as follows: □ Concentrated NCG System (LVHC controlled by 331A and 502A as backup) - Not to exceed 1% per semiannual reporting period □ Dilute NCG System (LVHC and HVLC Controlled by 501A and 502A as backup) - Not to exceed 4% per semiannual reporting period □ O_2 NCG System (HVLC controlled by 502A) - Not to exceed 4% per semiannual reporting period [§63.443(e)] The owner or operator shall submit semiannual excess emissions and continuous monitoring system performance reports and/or summary report to the Bureau. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period, and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report shall be submitted with report content in accordance with 63.10(e)(3)(vi-vii). If the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, both the summary report and the, excess emissions and the CMS system performance report shall be submitted with the report content in accordance with §63.10(e)(3)(v) and 63.10(e)(3)(vi). When no excess emissions or exceedances of a parameter have occurred, or a CMS has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report. The required reports shall contain the name, title, and signature of the responsible official. *[§63.454(a); §63.455(a); §63.8(c)(7); §63.8(c)(8); §§63.10(c)(5)-63.10(c)(13); §63.10(e)]* **(D): Record Keeping:** Records of applicable information for inspections and monitoring specified in §63.454(b) and 63.10(c) shall be kept on site. Specific operational and CMS record keeping for MACT S sources includes, but is not limited, to the requirements listed in Table H-1 of ATTACHMENT H, which is considered a Federally enforceable part of this condition and permit. Additional records may be required for source testing and performance evaluations, CMS evaluations, applicability determinations, etc.
MACT.2	ID 02: 311A 312A 340A 330A 351A 331B 352A 352B ID 07:	•HAP (Pulp Condensate Collection and Treatment) •*MACT S*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No.1 Continuous Digester System (02: 311A), •No. 2 Continuous Digester System (02: 312A), •Turpentine System (02: 340A), •No.1 Condensate Stripper System (02: 330A), •No.1 Evaporator System (02: 351A), •No.2 Condensate Stripper System (02: 352A), •No.2 Evaporator System (02: 352B), Methanol Rectification System (02: 331B); •No. 2 Power Boiler (07: 502A) The affected sources are subject to all applicable limits and requirements codified in the following regulations: □ *[NESHAP 63 Subparts A {General Provisions}: Part 63, Table 1; §§63.1-63.15];S*

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	502A		*{National Emission Standards For Hazardous Air Pollutants From The Pulp And Pape Industry}: §§63.440-63.441; §63.443; §63.446; §63.450; §§63.453-63.455; §§63.457-63.458; and SC Reg. 61-62.63, Subparts A and S (MACT S)]* ☐ *[NESHAP 40 CFR 63.453(m) and §63.8(f) -EPA and approved alternative for Condensate HAP reduction approach as well as alternative monitoring for leak detection and repair (LDAR) inspections every calendar month instead of every 30 days. Locations th at are classified as unsafe or inaccessible are exempted from inspecation/testing requirements and must be inspected/tested at least once per permi term].* **Condensate Collection and Treatment-** The affected sources are subject to all applicable requirements of MACT S as implemented by the alternative monitoring approach. The owner or operator shall collect in a closed system an applicable subset of pulping process condensates from each digester system, turpentine recovery system, evaporator stage whe weak liquor is introduced, HVLC system, and/or LVHC system such that at least 11.1 pounds of total hazardous air pollutants (HAP) per oven dried ton of pulp is collected. *[40 CFR 63.440; §63.441; §63.446(a); §63.446(b)]* Pulping condensates collected from a pplicable affected sources shall be conveyed in a closed system that meets the requirements of 63.446(d) and treated in the Methanol Rectification System to remove at least 10.2 pounds or more of total HAP per ton of oven dried pulp (lb/ton ODP). The HAP removed during treatment, rectified methanol, shall be combusted in the No. 2 NCG Incinerator and/or No. 2 Power Boiler. Remaining LVHC gases from this operation, as well as HAP collected from the fixed roof and all openings No. 1 and No. 2 Stripper Feed Tanks shall be routed in a closed system that the meets the requirements of §63.450 into the Concentrated NCG System to the *No. 2 NCG Incinerator with No. 2 Power Boiler* as a back up (use limited as a back up control device) for HAP reduction. *[§63.446(c); §63.446(c)(3); §63.446(d); §63.446(e)]* As specified in the approved alternative monitoring approach, compliance with both collection and treatment requirements was demonstrated during the initial performance te by showing that the amount of methano l treated (by burning of rectified methanol) exceeded both the condensate collection and treatment requirements of MACT S. For purposes of complying with the Kraft pulping condensate requirements methanol sha be used as a surrogate for total HAP concen tration. The specific affected condensate sources collected are listed in Table E -3, ATTACHMENT E, which is considered a Federally enforceable part of this condition and permit. **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): Condensate Collection and Treatment Monitoring -** The owner or operator will continue to calibrate, operate, and maintain a continuous parameter monitoring system (CPMS) to measure flow and specific gravity of rectified methanol flowing from the storage tank to the locations where the rectified methanol is permitted to burn as a fuel (*No. 2 NCG Incinerator* and *No. 2 Power Boiler*. The correlation established between specific gravity and rectified methanol concentration will continue to be used to determin the mass of rectified methanol collected and treated by the condensate collection/stripping/rectification systems. Production of air dried pulp from the two

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			continuous digesters will be monitoring using instrumentation at the units. The mass flow rate of r ectified methanol will be totaled daily to determine the amount of rectified methanol burned daily. The sum of the two digesters pulp production will be totalized daily to determine the air dried tons of unbleached production. A factor will be used to convert air dried production to oven dried production. Each day, the sum of the prior 15 days pounds of rectified methanol will be divided by the prior 15-days oven dried tons of unbleached pulp. The result is the 15-day rolling average of rectified methanol collected and treated in units of pounds per oven dried pulp and will be compared to the collection and treatment requirements. In order to assure compliance with both collection and treatment requirements the owner or operator will maintain the 15-day rolling average for rectified methanol produced above the 11.1 pounds per oven dried ton collection limitation. Any 15-day average below this limitation shall be reported as an excess emission. This alternative method of monitoring has been approved by the EPA and DHEC. The facility shall verify the specific gravity CPMS once per calendar year. If a single result deviates by more than 20% from the CMS indicated value, the owner or operator will investigate potential caused for the discrepancy and , if necessary, develop a new correlation curve. Any new correlation shall be submitted to Engineering Services, Bureau of Air Quality for approval prior to use. All CPMS are subject to applicable calibration, operation, maintenance, record keeping, andreporting requirements of §63.8 and §63.10. As a back up to the methanol rectification system, stripper off gases may also be combusted directly in the NCG Incinerator (331A). Per the approved alternative, during extended periods of methanol rectificati on system downtime, the facility may show compliance with collection and treatment requirements by monitoring the stripper feed rates and operating parameters using ranges established to assure reasonable compliance with collection and treatment requiremen ts. During the initial performance test, factors were determined for this purpose. The continuous monitoring system (CMS)for steam stripper parameters will only be required during these periods. During these periods, the owner or operator shall calibrate, operate, and maintain a CMS to measure the condensate feed rate, the steam feed rate, and the condensate feed temperature to the stripper column and use the established factors/ranges to determine condensate collected and treated each day. Each monitored parameter shall be recorded as a daily average. Periods when the stripper column is not operational shall not be included in the daily averages. [§63.453(a) §63.454(g)] The owner or operator shall operate the control device in a manner consistent w ith the minimum or maximum (as appropriate) operating parameter values. Operation of the control device below established maximum and/or minimum operating parameter values shall constitute a violation of the applicable emission standard of this subpart an d be reported as a period of excess emissions subject to SSM Plan requirements and allowance. An non-SSM excess emissions allowance was not allowed by the EPA for this alternative treatment. The owner or operator shall submit semiannual e xcess emissi ons and continuous monitoring system performance reports and/or summary report to the Bureau. The reports shall include excess emissions for collection and treatment requirements. If the total duration of excess emissions (treatment) for the reporting period is less than one percent (1

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			%) of the total operating time for the reporting period, and CMS downtime for the reporting period is less than five percent (5 %) of the total operating time for the reporting period, only the summary report shall be submitted with report content in accordance with 63.10(e)(vi). If the total duration of excess emissions (treatment) for the reporting period is 1 % or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting period is 5 % or greater of the total operating time for the reporting period, both the summary report and the, excess emissions and the CMS system performance report shall be submitted with the report content in accordance with §63.10(e)(3)(vii) and 63.10(e)(3(viii). When no excess emissions or exceedances of a parameter have occurred, or a CMS has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report. The required reports shall contain the name, title, and signature of the responsible official. [§63.454(a); §63.455(a); §63.8(c)(7); §63.8(c)(8); §§63.10(c)(5)-63.10(c)(13); §63.10(e)] **(C): Record Keeping:** Records, including the applicable requirements of §63.454(a), 63.454(b), as well as §63.10 aswell as any 15-day performance test data the to develop the correlation between specific gravity and rectified methanol concentration, the annual CM verification, and supporting data, shall be maintained on-site. Specific operational and CMS record keeping for MACT S sources includes, but is not limited, to the requirements listed in Table H-1 of ATTACHMENT H, which is considered a Federally enforceable part of this condition and permit. Additional records may be required for source testing and performance evaluations, CMS evaluations, applicability determinations, etc.
MACT.3	401U 402A	•HAP (Bleach Vents-Chlorine as the surrogate for HAP) •*MACT S*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No. 1 Bleach Plant (401U), •No. 2 Bleach Plant (402A) The affected sources are subject to all applicable limits and requirements codified in the following regulations: □ *[NESHAP 40 CFR Subparts A {General Provisions: Part 63, Table 1;§§63.1-63.15]; S {National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}: §§63.440-63.441; §63.443; §63.445; §63.450; §§63.453-63.455; §§63.457-63.458; and SC Reg. 61-62.63, Subparts A and S (MACT S)]* □ *[NESHAP 40 CFR 63.453(m) and §63.8(f) EPA and DHEC approved alternative scrubber monitoring]* **Bleaching System Vent Treatment**-The affected sources are subject to all applicable requirements of MACT S. The equipment where chlorinated compounds are introduced for this source shall be enclosed and vented into a closed-vent system and routed to a scrubber to achieve a scrubber outlet concentration of no more than ten (10) parts per million by volume (ppmv). The enclosures and closed-vent system shall meet the requirements specified in §63.450. In order to comply with chloroform air emission reduction requirements, the owner or operator shall comply with the applicable effluent limitation guidelines and standards specified in 40 CFR 430.24(a)(1) and §430.24(e). [NESHAP 40 CFR 63.440; 63.441; 63.445(a); 63.445(a)(2); 63.445(b); 63.445(c); 63.445(c)(1); 63.445(c)(2); 63.445(d)] The chlorinated HAP from affected sources are routed to the Bleach Plant Scrubbers The specific affected sources that must be collected and routed to the scrubber are listed in Table E-4 of ATTACHMEMT E, which is considered a Federally enforceable part of this condition and permit.

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			Testing: Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): Bleach Plant Scrubber Monitoring** -The owner or operator shall continue to calibrate, operate, and maintain according to manufacturer's specifications a continuous parametric monitoring system (CPMS) to measure scrubber liquid influent (recirculation) flow, and scrubber influent pH or oxidation reduction potential (ORP). The CPMS shall include a continuous recorder. Under the authority of §63.453(m) and §63.8(f), the owner or operator has been granted approval by the EPA and SC DHEC to monitor scrubber fan amperage as an alternative to scrubber gas inlet flow and monitoring of the pH or ORP in the scrubber liquid influent as opposed to the required location in the effluent . The approval of pH or ORP monitoring in the scrubber liquid influent, the EPA requires monitoring of the flow and pH (unless the pH of the makeup is demonstrated to be constant) of caustic make up added to the scrubber influent. The CPMS is subject to all calibration, operation, maintenance, record keeping, and reporting requirements of §63.8 and 63.10. The sampling frequencies and averaging times established according to 63.453(n) are shown in Table MACT.3.T1 below. [§63.453(a); §63.453(c)] **Table 03.2.T1 MACT S Bleach Plant TV Parameter Monitoring for Scrubbers 401U and 402A** **HAP Monitoring Method/Requirements** | **Sampling Frequency/Averaging Time** **401U Monitoring**: Scrubber liquid recirculation flow CPMS Scrubber caustic makeup flow CPMS Scrubber pH (influent) CPMS Fan operation (use amps) CPMS | **Frequency:** Minimum of once every 15 minutes **402A Monitoring:** Scrubber liquid recirculation flow CPMS Scrubber pH (effluent) CPMS Fan operation (use amps) CPMS | **Frequency:** Minimum of once every 15 minutes **Monitor Requirements**: NESHAP 40 CFR 63.453(c), §63.8 Approved alternative MACT S monitoring | **Averaging:** 3-hour averages Values for each operating parameter, monitoring frequencies, and averaging periods shall be established or reestablished as specified in §63.453(n) to show reasonable assurance of continuing compliance with the MACT S HAP limitation. Values for the operating ranges have been established. The measurement frequency and averaging time periods have been established as a minimum measurement frequency of once every successive fifteen minutes (15) with three (3)-hour averages. **Excess Emissions:** Deviations from the established operating parameter values shall be reported as periods of excess emissions (Any three (3)-hour value outside the established ranges) for the MACT S HAP limitations. The owner or operator shall operate the control device in a manner consistent with the minimum or maximum (as appropriate) operating parameter values. Operation of the control device below established maximum and/or minimum operating parameter values shall constitute a violation of the applicable emission standard of this subpart and be reported as a period of excess emissions, subject to SSM Plan requirements and allowances. A non -SSM excess emissions allowance was not allowed by the EPA for these requirements.

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			The owner or operator shall submit semiannual e xcess emissions and continuous monitoring system performance reports and/or summaryreports to the Bureau. If the total duration of excess emissions for the reporting period is less than one percent (1 %) of the total operating time for the reporting period, and CMS downtime for the reporting pedis less than five percent (5 %) of the total operating time for the reporting period, only the summary report shall be submitted with report content in accordance with 63.10(e)(vi). I the total duration of excess emissions for the reporting period is 1 % or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting peri is 5 % or greater of the total operating time for the reporting period, both the summary report, excess emissions report, and the CMS system performance report shall be submitte with the report content in accordance with §63.10(e)(3)(vii and viii). When no excess emissions or exceedances of a parameter have occurred, or a CMS has not been inoperative, out of control, repaired, or adjust ed, such information shall be stated in the report. [40 CFR Part 63, Table 1; §63.455(a); §63.10(e)] **(B): Record Keeping-**The affected sources are subject to all applicable record keeping requirements of MACT S. Records of applicable information for insp ections and monitoring specified in §§63.545(a), 63.454(b) and 63.10(c) shall be kept on site. Specif operational and CMS record keeping for MACT S sources includes, but is not limited, to the requirements listed in Table H -1 of ATTACHMENT H, which is c onsidered a Federally enforceable part of this condition and permit. Additional records may be required for source testing and performance evaluations, CMS evaluations, applicability determinations, constant pH of caustic makeup, etc.
MACT.4	02: 311A 312A 321A 322A 330A 331A 331B 340A 351A 352A 352B 401D 401E 401J 401M 401N 401V 401W 402C 402D 402E 402H 03: 401U 402A 07:	•Pulp/Bleach/ (Condensate Closed-Vent and Closed Collection System Requirements) •*MACT S*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No.1 Continuous Digester System (02: 311A), •No. 2 Continuous Digester System (02: 312A), •No. 1 Brown Stock Washing System (02: 321A), •No. 2 Brown Stock Washing System (02: 322A); •No.1 Condensate Stripper System(02: 330A), •No. 2 NCG Incinerator (02: 331A), • Methanol Rectification System (02: 331B), •Turpentine System (02: 340A), • No.1 Evaporator System (02: 351A) , •No.2 Condensate Stripper System (02: 352A), •No.2 Evaporator System (02: 352B), •No.1 O_2-2 Washer Filtrate Tank (02: 401D), •No.1O_2-1 Washer Filtrate tank (02: 401E), •No. 1 O_2 Blow Tank (02: 401J), •Twin Roll Pressate Tank (02: 401M), •No. 1 O_2 Washers (02: 401N), No. 1 O_2 Blend Chest (401V), • No. 1 Twin Roll Presses (401W), •No. 2 O_2 Blow Tank/Interstage Chest (02: 402C), •No. 2 O_2 -1 Washer Pressate Tank (02: 402D), •No. 2 O_2 -2 Washer Pressate Tank (402E), •No. 2 O_2 Washers 02: 402H); • No. 1 Bleach Plant (03: 401U), •No. 2 Bleach Plant (03: 402A); •N o. 1 Power Boiler (07: 501 A), •No. 2 Power Boiler (07: 502A) The affected sources are subject to all applicable limits and requirements codified in the following regulations: □ *[NESHAP 40 CFR 63.450 {MACT S -Standards For Enclosures And Closed -Vent Systems}];* □ *[NESHAP 40 CFR 63.453 {MACT S-Monitoring Requirements];* □ *[NESPAP 40 CFR 63.446 {MACT S -Standards For Kraft Pulping Process Condensates}];* □ *[NESHAP 40 CFR 63, Subpart RR {National Emission Standards For Individual Drain Systems} (MACT RR)]* □ *SC Reg. 61-62.63, Subparts A and S (MACT S)]* □ *[NESHAP 40 CFR 63.453(m) and 6.8(f) -Approved alternative monitoring for leak detection and repair (LDAR) inspections every calendar month instead of every 30 days*

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	501A 502A		*and for alternative monitoring (at least once each permit term) for unsafe/inaccessible inspection points]* **(A): Enclosures/Closed-Vent Systems: Affected Sources: [ID 02:311A, 312A, 321A, 322A, 330A, 331A, 331B, 340A, 351A, 352A, 352B, 401D, 401E, 401J, 401M, 401N, 401V, 401W, 402C, 402D, 402E, 402H; ID 03: 401U, 402A; ID 07: 501A, 502A]-** Enclosures and closed-vent systems for affected sources shall be conveyed in a closed collection system that meets the requirements of 40 CFR 63.450. □ Each enclosure shall maintain negative pressure at each enclosure or hood opening as demonstrated by the procedures specified in §63.457(e). □ Each component of the closed -vent system that is operated at positive pressure and located prior to a control device shall be designed for and operated with no detectable leaks as indicated by an instrument reading of less than 500 parts per million by volume above background, as measured by the procedures specified in §63.457(d). [40 CFR 63.443(c) and §63.445(b)] **(B): Closed Condensate System Requirements: Affected Sources: [ID 02: 311A, 312A, 330A, 331A, 331B, 340A, 351A, 352A, 352B]-** The pulping process condensates from the applicable affected equipment systems shall be conveyed in a closed collection system that is designed and operated to meet the requirements of 40 CFR 63. 446(d). □ The fixed roof and all openings (e.g. access hatches, sampling ports, gauge wells) of any collection tanks used in required condensate collection systems shall be designed and operated with no detectable leaks as indicated by an instrument reading of less than 500 parts per million (ppm) above background. □ Each affected condensate collection tank opening shall be maintained in a closed, sealed position at all times a tank contains condensates or any HAP removed from a pulping process condensate stream. A tank opening may be open when it is necessary to use the opening for sampling, removal, or for equipment inspection, maintenance, or repair. [40 CFR 63.446(d); §63.960; §60.961; §60.962] **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): Enclosure and closed-vent system Inspection: Affected Sources: [ID 02: 311A, 312A, 321A, 322A, 330A, 331A, 331B, 340A, 351A, 352A, 352B, 401D, 401E, 401J, 401M, 401N, 401V, 401W, 402C, 402D, 402E, 402H; ID 03: 401U; ID 07: 501A, 502A]--**For each applicable enclosure opening, closed-vent system, and closed collection system, the owner or operator shall prepare and maintain a site -specific inspection plan including a drawing or schematic of the components of applicable affected equipment. [§63.454(b)] □ Enclosures and close d-vent systems for affected sources shall meet the inspection requirements in §63.453(k). □ Closure mechanisms for enclosure openings and closed -vent systems shall be visually inspected at least once every calendar month (approved alternative monitoring) □ Each closed-vent system shall be visually inspected at least once every calendar month (approved alternative monitoring). The visual inspection shall include inspection of ductwork, piping, enclosures, and connections to covers for visible evidence of defects □ Demonstrate initially and annually there are no visible leaks (≤ 500 ppm) in positive pressure closed-vent systems using the procedures in 40 CFR 63.457(d) □ Negative pressure conditions for each enclosure opening shall be demonstrated initially

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			and annually thereafter using the procedures in §63.457(e) □ The valve or closure mechanism specified in §63.450(d)(2) shall be inspected at least once per calendar month (approved alternative monitoring) to ensure that the valve is maintained in the closed position and the emission point gas stream is not diverted through the bypass line. The facility has received approval for alternative monitoring that allows inspections and testing for unsafe and/or inaccessible locations to be performed at least once every permit term instead of as required in the regulation. If an inspection identifies visible defects in an enclosure or closed -vent system or if an instrument reading of 500 parts per million or greater above background is measured, the the following corrective actions shall be taken: □ A first effort to repair or correct the closed -vent system shall be made as soon as practicable but no later than 5 calendar days after the problem is identified. □ The repair or corrective action shall be completed no later than 15 calendar days after the problem is identified. Delay of repair or corrective action is allowed if the repair or corrective action is technically infeasible without a process unit shutdown or if the owne or operator determines that the emissions resultin g from immediate repair would be greater than the emissions likely to result from delay of repair. Repair of such equipmen shall be completed by the end of the next process unit shutdown. **(B): Closed Condensate System Inspection: Affected Sources: [ID 02: 311A, 312A, 330A, 331A, 331B, 340A, 351A, 352A, 352B]**-Each condensate collection system for the affected sources shall meet the inspection requirements in §63.453(l) and §63.964, excep owners/operators shall comply with the recordkeeping requirements of §63.454 instead of the requirements specified in §63.964(a)(1)(vi) and §63.964(b)(3). □ The condensate collection system shall be inspected once per calendar month (approved alternative monitoring) □ The water seals and closure devices for the individua l drain system shall be inspected initially and, thereafter, at least once every year. □ Each condensate tank used in the closed collection system shall be operated with no detectable leaks as indicated by an instrument reading of less than 500 parts per million above background measured initially and annually by the procedures specified in §63.457(d). If an inspection identifies visible defects in the closed condensate collection system or if instrument reading of 500 parts per million or greater above background is measured, then the following corrective actions shall be taken. □ The owner or operator shall make first efforts at repair of the defect no later than 5 calendar days after detection and repair shall be completed as soon as possible but later than 15 calendar days after detection except as provided below: □ Repair of a defect may be delayed beyond 15 calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from servic of the individual drain system and no alternative capacity is available at the facility site t accept the regulated-material normally managed in the individual drain system. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the regulated-material managed in the individual drain system stops operation Repair of the defect shall be completed before the process or unit resumes operation.

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Condition No.	Equip ID	Regulated Pollutant/ *Standard*	Conditions
MACT.5	ID 05: 371A 372A ID 06: 381A 382A 381C 382B	•HAP (Combustion Sources) (PM as a surrogate for HAP (Metals) •*MACT MM*	**Limits/Standards [State Only: No]** : The following are affected source(s) for this condition: •No. 1 Lime Kiln (05: 371A), •No. 2 Lime Kiln (05: 372A), •No. 1 Recovery Furnace (06: 381A), •No. 2 Recovery Furnace (06: 382A), •No. 1 Smelt Dissolving Tank (06: 381C), •No. 2 Smelt Dissolving Tank (06: 382B) The affected sources are subject to all applicable limits and requirements codified in the following regulations: □ *[NESHAP 40 CFR 63, Subparts A {General Provisions}: Part 63, Table 1; §§63-63.15; MM {National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand -Alone Semichemical Pulp Mills} (MACT MM): §§63.860-60.868;and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* □ *[NESHAP 40 CFR 63.453(m) and 63.8(f) EPA and DHEC approved alternative scrubber monitoring]* The affected sources are subject to all applicable requirements of MACT MM. As requested by the facility, the individual particulate matter (PM) limits for MACT MM for all affected sources are based on facility wide or "bubble" limit procedures allowed and specified in §63.862(a)(1)(ii). Based on the production, stack gas flow, calculated overall facility limit, and test information submitted the "Bubble" PM limits (surrogate for HAP metals) for the affected equipment are established and approved by the Bureau as follows: **Table MACT.5.T1** **ID** / **Equipment** / **PM Limit** / **Units** 05 / 371A / ≤ 0.13 / gr/dscf @ 10% O_2 05 / 372A / ≤ 0.10 / gr/dscf @ 10% O_2 06 / 381A / ≤ 0.044 / gr/dscf @ 8% O_2 06 / 382A / ≤ 0.030 / gr/dscf @ 8% O_2 06 / 381C / ≤ 0.096 / gr/dscf at full rate and cyclonic flow measurement 06 / 382B / ≤ 0.11 / gr/dscf at full rate gr/dscf@8%O_2 = grain per dry standard cubic foot (gr/dscf)) corrected to 8 percent oxygen gr/dscf@10%O_2 = grain per dry standard cubic foot (gr/dscf)) corrected to 10 percent oxygen lb/T BLS F = lb/ton black liquor solids fired ≤ = less than or equal to The individual sources shall meet the individual limits determined using the "bubble" procedures. The owner or operator of an affected source must reestablish the emissions limits determined using the "bubble" limit procedures if: □ The air pollution control system for any affected source for which an emission limit was established is modified or replaced; or □ Any affected source for which an emission limit was established is shut down for more than 60 consecutive days. **Testing:** Initially (Completed); Routine testingnot required by MACT MM. Routine PM testing is required by SC Reg. 61-62.5, Std. 4. **Monitoring/Record Keeping/Reporting/Other:** **(A1): ESP (382A)] Opacity Monitoring : Affected Sources: [ESP 372A , 381A, and**

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			382A] -The owner or operator of a Kraft recovery furnace or lime kiln equipped with an electrostatic precipitator (ESP) must install, calibrate, maintain, and operate a continuous opacity monitoring system(s) (COMS) to monitor PM. See Table MACT.5.T2 below for COMS sampling frequency, averaging time, installation, and operation and maintenance requirements.

Table MACT.5.T2 MACT MM Parameter Monitoring for ESP 05:372A, ID 06:381A, and ID 06:382A	
PM Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
Monitoring: (MACT MM) COMS (Opacity)	**Frequency:** Minimum of one cycle of sampling and analyzing every successive 10-second period
Monitor requirements: 40 CFR 63.864(d), §63.6h; §63.8	**Averaging**: One Cycle of data averaged each successive 6-minute period-data reduction as specified in 63.8(g)(2)

[§63.864(d); §63.864(d)(3); §63.864(d)(4)]

(A2): Excess Emissions: Affected Sources: [ESP 372A, 381A, and 382A]-Corrective action must be implemented when the average of ten (10) consecutive six-minute (6-min.) averages result in measurement greater than twenty percent (20 %) opacity (corrective action level). Furthermore, a violation of the particulate matter (PM) standard occurs, when opacity is greater than thirty five percent (35 %) for six percent (6 %) or more of the operating time within any quarterly period for the recovery furnaces or when opacity is greater than twenty percent (20 %) for six percent (6 %) or more of the operating time within any quarterly period for the lime kiln, subject to startup, shutdown, and malfunction (SSM) Plan requirements and exclusions. [§63.864(k)(1); §63.864(k)(1)(i); §63.864(k)(2); §63.864(k)(2)(i); §63.864(k)(2)(ii); §63.864(k)(3)]; §63.6(h)]

(B1): Continuous Scrubber Monitoring: Affected Sources [Scrubber 371A, 381C, and 382B] -The owner or operator must install, calibrate, maintain, and operate a continuous parameter monitoring systems (CPMS) for the following scrubber parameters which include approved alternative monitoring under the authority of §63.453(m) and §63.8(f). See Table MACT.5.T3 below for COMS sampling frequency, averaging time, installation, and operation and maintenance requirements.

Table MACT.5.T3 MACT MM Parameter PM Monitoring for ID 05: Scrubber 372A, ID 06:381A, and ID 06:382A	
Monitoring Method/Requirements	**Sampling Frequency/Averaging Time**
Monitoring: (MACT MM) - Scrubber liquid flow (371A, 381C, 382B) - Scrubber supply pressure (371A) - Fan operation (by amps) (381C, 382B)	**Frequency**: Minimum of one cycle of sampling and analyzing every successive 15-minute period
Monitor requirements: - 40 CFR 63.864(e)(10), §63.8 - The monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate.	**Averaging**: 3-hour averages

Operating ranges for the monitoring parameters have been established and may be re-established in accordance with §63.864(j) (See ATTACHMNET H, Table H-1 for

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			ranges). [§63.864(e); §63.864(e)(10)] **(B2): Excess Emissions: Affected Sources: Scrubber 371A, 381C, and 382B]** - The owners or operator is required to implement corrective action when any three -hour (3-hour) average parameter value is outside the established range (excess emissions and corrective action level). All affected sources or process units are in violation of the standards when six (6) or more 3-hour average parameter values within any six-month (6-month) reporting period are outside the established rang e, subject to SSM Plan requirements and exclusions. For the purposes of determining the number of nonopacity monitoring exceedances, no more than one exceedance will be attributed in any given 24-hour period. §63.864(k)(1); §63.864(k)(1)(ii); §63.864(k)(2); §63.864(k)(2)(iii); §63.864(k)(3); 6§3.6(h)] **(C): Excess Emission Reporting** -The owner or operator must report quarterly if measured parameters meet any of the conditions specified in §63.864(k)(1) or §63.864(k)(2). This report must contain the information specified in §63.10(c) as well as the number and duration of occurrences when the source met or exceeded the conditions i §63.864(k)(1), and the number and duration of occurrences when the source met or exceeded the conditions in §63.864(k)(2). Whe n no exceedances of parameters have occurred, the owner or operator must submit a semiannual report stating that no excess emissions occurred during the reporting periods. [§63.867(c)] **(D): Record Keeping**-Records of applicable information for inspections and monitoring specified in §63.545(b) and 63.10(c) shall be kept on site. Specific operational and CMS record keeping for MACTMM sources includes, but is not limited, to the requirements listed in Table H-1 of ATTACHMENT H, which is considered a Federa lly enforceable part of this condition and permit. Additional records may be required for source testing and performance evaluations, CMS evaluations, applicability determinations, etc.
MACT.6	ID 02: 311A 312A 321A 322A 330A 331A 331B 340A 351A 352A 352B 401D 401E 401J 401M 401N 401V 401W 402C 402D	•CMS •*MACT S* •*MACT MM*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No.1 Continuous Digester System (02: 311A), •No. 2 Continuous Digester System (02: 312A), •No. 1 Brown Stock Washing System (02: 321A), •No. 2 Brown Stock Washing System (02: 322A),•No.1 Condensate Stripper System(02: 330A),•No. 2 NCG Incinerator (02: 331A), • Methanol Rectification System (02: 331B), •Turpentine System (02: 340A), • No.1 Evaporator System (02: 351A) , •No.2 Condensate Stripper System (02: 352A), •No.2 Evaporator System (02: 352B), •No.1 O_2-2 Washer Filtrate Tank (02: 401D), •No.1O_2-1 Washer Filtrate tank (02: 401E), •No. 1 O_2 Blow Tank (02: 401J), •Twin Roll Pressate Tank (02: 401M), •No. 1 O_2 Washers (02: 401N), •No. 1 O_2 Blend Chest (401V), •No. 1 Twin Roll Presses (401W), •No. 2 O_2 Blow Tank/Interstage Chest (02: 402C), •No. 2 O_2 -1 Washer Pressate Tank (02: 402D), •No. 2 O_2 -2 Washer Pressate Tank (402E), •No. 2 O_2 Washers (02: 402H); •No. 1 Bleach Plant (03: 401U), •No. 2 Bleach Plant (402A); •No. 1 Lime Kiln (05: 371A), •No. 2 Lime Kiln (05: 372A); •No. 1 Recovery Furnace (06: 381A), •No. 2 Recovery Furnace (06: 382A), No. 1 Smelt Dissolving Tank (06: 381C), •No. 2 Smelt Dissolving Tank (382B); •No. 1 Power Boiler (07: 501A), •No. 2 Power Boiler (07: 502A) The affected sources are subject to all applicable limits and requirements codified in the following regulations: ☐ *[NESHAP 40 CFR 63, Subparts A {General Provisions}; S{National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}; and SC Reg. 61 - 62.63, Subparts A and S (MACT S)*

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Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
	402E 402H ID 03: 401U 402A ID 05: 371A 372A ID 06: 381A 382A 381C 382B ID 07: 501A 502A		☐ *[NESHAP 40 CFR 6 3 Subparts A {General Provisions}; MM {National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources A Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills}; and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* ☐ *[40 CFR 63.EPA and DHEC approved alternative monitoring for scrubbers]* The affected sources are subject to all applicable continuous monitoring system (CMS) requirements of MACT S and MACT MM. CMS includes, but is not limited to, continuous emission monitoring systems (CEMS), continuous opacity monitoring systems (COMS), and continuous parameter monitoring systems (CPMS), or other manual or automatic monitoring that is used for demonstrating compliance with an applicable regulation on a continuous basis. [§63.2] **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** Applicable CMS required by 40 CFR 63, Subpart S (MACT S) and Subpart MM (MACT MM) shall be installed calibrated, certified, operated, and maintained according to the manufactur er's specifications. The required CMS are summarized in MACT.6.T1 below: [§63.453(a), §63.453(c), §63.453(g), §63.453(i) §63.864(d), §63.864(d)(3), §63.864(d)(4), §63.864(e), §63.864(e)(10); §63.6h, §63.8]

Table MACT.6.T1 Part 63 MACT Continuous Monitoring Systems

ID	Equip. No.	CMS Type Pollutant Monitored: (Parameter(s))	Regulation
02	331A	CPMS/HAP: NCG Incinerator Temperature	MACT S
02	330A 352A	CPMS/HAP: collection and removal (Condensate feed rate, steam feed rate, column feed temperature as backup to 331B alternative CMS only)	MACT S
02	330A 352A 330B	CMS/HAP: Rectified methanol flow CPMS/HAP: Rectified methanol specific gravity CPMS/HAP: Pulp Production from Digesters	MACT S
03	401U	CPMS/HAP: Fan operation by amps, influent pH, recirculation liquid flow. Makeup flow (approved alternative monitoring)	MACT S
03	402A	CPMS/HAP: Fan operation (by amps), effluent pH, recirculation liquid flow (approved alternative monitoring)	MACT S
05	371A	CPMS/PM-HAP Metals: Water pressure and flow (approved alternative monitoring)	MACT MM
06	372A 381A 382A	COMS/PM-HAP Metals: Opacity	MACT MM
06	381C 382B	CPMS/PM-HAP Metals (Fan operation (by amps and liquid flow) (approved alternative monitoring)	MACT MM

Applicable procedures in §63.8 shall be used for location, installation, assurance of representative sampling, operation, maintenance, calibration, accuracy audits, performance audits, quality control program development, performance evaluations, data reduction, inspections, record keeping, and reporting for CMS.

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			When the CMS is out of control, the owner or operator shall take the necessary corrective action in accordance with the procedures in §63.8(c)(7)(ii).During the period the CMS is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirements. The owner or operator of a CMS that is out of control shall submit all information concerning out-of-control periods the excess emissions and CMS performance report required in §63.10(e)(3).
MACT.7	ID 02: 311A 312A 321A 322A 330A 331A 331B 340A 351A 352A 352B 401D 401E 401J 401M 401N 401V 401W 402C 402D 402E 402H ID 03: 401U 402A ID 05: 371A 372A ID 06: 381A 382A 381C 382B ID 07: 501A 502A	•SSM •*MACT S* •*MACT MM*	**Limits/Standards [State On ly: No] :** The following are affected source(s) for this condition: •No.1 Continuous Digester System (02: 311A), •No. 2 Continuous Digester System (02: 312A), •No. 1 Brown Stock Washing System (02: 321A), •No. 2 Brown Stock Washing System (02: 322A),•No.1 Condensate Stripper System(02: 330A),•No. 2 NCG Incinerator (02: 331A), • Methanol Rectification System (02: 331B), •Turpentine System (02: 340A), • No.1 Evaporator System (02: 351A) , •No.2 Condensate Stripper System (02: 352A), •No.2 Evaporator System (02: 352B), •No.1 O_2-2 Washer Filtrate Tank (02: 401D), •No.1 O_2-1 Washer Filtrate tank (02: 401E), •No. 1 O_2 Reactor Blow Tank (02: 401J), •Twin Roll Pressate Tank (02: 401M), •No. 1 O_2 Washers (02: 401N), •No. 1 O_2 Blend Chest (401V), • No. 1 Twin Roll P resses (401W), •No. 2 O_2 Blow Tank/Interstage Chest (02: 402C), •No. 2 O_2-1 Washer Pressate Tank (02: 402D), •No. 2 O_2-2 Washer Pressate Tank (402E), •No. 2 O_2 Washers (02: 402H); •No. 1 Bleach Plant (03: 401U), •No. 2 Bleach Plant (402A); •No. 1 Lime Kiln (05:371A), •No. 2 Lime Kiln (05: 372A); •No. 1 Recovery Furnace (06: 381A), •No. 2 Recovery Furnace (06: 382A), No. 1 Smelt Dissolving Tank (06: 381C), •No. 2 Smelt Dissolving Tank (382B); •No. 1 Power Boiler (07: 501A), •No. 2 Power Boiler (07: 502A) The affected sources are subject to all applicable limits and requirements codified in the following regulations: □ *[NESHAP 40 CFR Subpart A {General Provisions};S {National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}; and SC Reg. 61-62.63, Subparts A and S (MACT S)]* □ *[NESHAP 40 CFR 63, Subparts A {General Provisions}; MM {National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills}; and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* The affected sources are subject to all applicable startup, shutdown. malfunction (SSM) maintenance, SSM plan, record keeping, and reporting requirements of MACT S and MM. *[NESHAP 40 CFR 63, Subpart S Table 1 and Subpart MM Table 1; §63.866(a) §63.6(e)(1), §63.6(e)(3), §63.10(b)(2), §63.10(d)(5)]* **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** **(A): SSM Plan** -At all times, including periods of SSM, the owner or ope rator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of SSM, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practice as outlined in 40 CFR 63.6(e)(1). Malfunctions must be corrected as soon as practicable after their occurrence. During an unexpected event arises during a SSM, the

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			owner or operator must comply by minimizing emissions during such a SSM consistent with safety and good air pollution control prac tices. Determination of whether good operation and maintenance procedures are being used will be based on information available to the Bureau which may include, but is not limited to, monitoring results, revie of operation and maintenance procedures (in cluding the required SSM plan, review of operation and maintenance records, and inspection of the source. The owner or operator of an affected source must develop a written SSM plan that: □ Describes, in detail, procedures for operating and maintaining thesource during periods of SSM □ Includes a program of corrective action for malfunctioning process, air pollution control and monitoring equipment used to comply with the relevant standard. meets the requirements In addition to the meeting the plan requirements above, the SSM plan of sources subject to 40 CFR 63, Subpart MM (MACT MM) must also contain the following: □ Procedures for responding to any process parameter level that is inconsistent with the level(s) established under §63.864(j) □ Procedures to determine and record the cause of an operating parameter exceedance and the time the exceedance began and ended □ Corrective actions to be taken in the event of an operating parameter exceedance, including procedures for recording the actions taken to correct the exceedance □ A maintenance schedule for each control technique that is consistent with, but not limite to, the manufacturer's instructions and recommendations for routine and long -term maintenance □ An inspection schedule for each continuous monitoring system required under §63.864 to ensure, at least once in each 24-hour period, that each continuous monitoring system is properly functioning. The plan must be maintained for the life of the source, or until the source is no longer subject to the standard. The SSM plan does not need to address any scenario that would not cause the source to exceed an applicable emission limitation in the relevant standard. [§63.6(e)(3); §63.866(a)] The SSM plan is not a part of the Title V permit and any revisions made to the SSM plan in accordance with the procedures established by 63.6(e) shall not be deemed to constitut Title V permit revisions. In addition, none of the procedures in the SSM plan will fall within the permit shield in section 504(f) of the Clean Air Act. A current SSM plan must be maintained at the source for inspection and copying by the Bureau upon request In addition, if the SSM plan is subsequently revised as provided in §63.6(e)(3)(viii), the owner or operator must maintain at the affected source each previous (i.e., superseded) version of the SSM plan, and must make each such previous version available for inspection and copying by the Bureau for a period of 5 years after revision o the plan. The Bureau may at any time request in writing a c opy of any SSM plan maintained at the source for examination by the Bureau. The owner or operator must respond to such request promptly. When actions taken by the owner or operator during startup or shutdown (and the startup

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
			shutdown causes the source to exceed any applicable limitation in the relevant emission standards) or malfunction (including actions taken to correct a malfunction) are consisten with the procedures specified in the affected source's SSM plan, the owner or operator shall keep records for that event that demonstrate that the procedures specified in the plan were followed and document of the occurrence and duration of each SSM of operation an each malfunction of the air pollution control equipment. In addition, the owner or operator must keep the records in §63.10(b) (See General MACT record keeping condition). Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period during periods of SSM were consistent with the affected source 's SSM plan in the semiannual SSM report required in §63.10(d)(5). The owner or operator may make revisions to the SSM plan without prior approval by the Bureau. However, each revision to a SSM plan must be reported in the required semiannual report. Ifthe SSM plan fails to address or inadequately addresses an event tha meets the characteristics of a malfunction but was not included in the SSM plan at the tin the owner or operator developed the plan, the owner or operator shall revise the SSM plan within forty five (45) days after the event to include detailed procedures for operating and maintaining the source during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control equipment. The Bureau may require that an owner or operator of an affected source make changes to the SSM pla for that source. **(B1): Immediate SSM Report**-If an action taken by the owner or operator during a SSM (including an action taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM plan, and the source exceeded any applicable emission limitation in the relevant emission standard, the owner or operator shall report the actions taken for that event to the Bureau within two (2) working days after commencing actions inconsistent with the plan, followed by a letter within seven (7) working days after the end of the event. The written Immediate SSM Report should be se to the Manager of the Air Toxics Section, Bureau of Air Quality. (Note: State notification requirements in South Carolina Regulations 62.1, Section II (C)(3) also apply for malfunctions and upsets.) **(B2): Periodic SSM Report**-If actions taken by an owner or operator during a SSM of an affected source (including actions taken to correct a malfunction) are consistent with the current SSM plan or if the actions taken are not consistent with the current SSM plan, but the source does not exceed any applicable emission limits of the relevant emission standard, the owner or operator must submit this information in a periodic SSM report. The SSM report shall consist of a letter, containing the name, title, and signature of the responsible official who is certifying its accuracy an the SSM information specified in 40 CFR 63.10(d)(5)(i). The SSM report shall be submitted to the Manager of the Air Toxics Section, Bureau of Air Quality semiannually (if required) postmarked by the 30th day following the end of each reporting period. Reports shall only be required if a SSM occurred during the reporting period.
MACT.8	ID 02: 311A 312A 321A 322A	•MACT Record Keeping •*MACT S*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No.1 Continuous Digester System (02: 311A), •No. 2 Continuous Digester System (02: 312A), •No. 1 Brown Stock Washing System (02: 321A), •No. 2 Brown Stock Washing System (02: 322A),•No.1 Condensate Stripper System(02: 330A),•No. 2 NCG Incinerator (02: 331A), • Methanol Rectification System (02: 331B), •Turpentine

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
	330A 331A 331B 340A 351A 352A 352B 401D 401E 401J 401M 401N 401V 401W 402C 402D 402E 402H ID 03: 401U 402A ID 05: 371A 372A ID 06: 381A 382A 381C 382B ID 07: 501A 502A	•*MACT MM*	System (02: 340A), • No.1 Evaporator System (02: 351A) , •No.2 Condensate Stripper System (02: 352A), •No.2 Evaporator System (02: 352B), •No.1 O_2-2 Washer Filtrate Tank (02: 401D), •No.1 O_2-1 Washer Filtrate tank (02: 401E), •No. 1 O_2 Blow Tank (02: 401J), •Twin Roll Pressate Tank (02: 401M), •No. 1 O_2 Washers (02: 401N), •No. 1 O_2 Blend Chest (401V), •No. 1 Twin Roll Presses (401W), •No. 2 O_2 Blow Tank/Interstage Chest (02: 402C), •No. 2 O_2 -1 Washer Pressate Tank (02: 402D), •No. 2 O_2 -2 Washer Pressate Tank (402E), •No. 2 O_2 Washers (02: 402H); •No. 1 Bleach Plant (03: 401U), •No. 2 Bleach Plant (402A); •No. 1 Lime Kiln (05: 371A), •No. 2 Lime Kiln (05: 372A); •No. 1 Recovery Furnace (06: 381A), •No. 2 Recovery Furnace (06: 382A), No. 1 Smelt Dissolving Tank (06: 381C), •No. 2 Smelt Dissolving Tank (382B);•No. 1 Power Boiler (07: 501A), •No. 2 Power Boiler (07: 502A) The affected sources are subject to all applicable limits and requirements codified in the following regulations: □ *NESHAP 40 CFR Subpart A {General Provisions}; S {National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}; and SC Reg. 61-62.63, Subparts A and S (MACT S)]* □ *[NESHAP 40 CFR 63, Subparts A {General Provisions}; MM {National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills}; and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* The affected sources are subject to all applicable record keeping requirements of Subpart A, S, and MM. **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** Specific record keeping for each MACT includes, but is not limited to the requirements listed in Table H-1 of ATTACHMENT H. *MACT S [§63.454(a)-§63.454(b); §§63.454(d)-63.454(e)]* *MACT MM [§§63.866(a)-63.866(c)(5)]* *Subpart A [§§63.10(b)(2)(i)-63.10(2)(xii); §63.10(b)(xiv); §63.10(c)(1); §§63.10(c)(5)-(c)(8); §§63.10(c)(10)-§63.10(c)(14)]* Note: Other record keeping required by South Carolina and Federal regulations may also apply to theses emission units.
MACT.9	ID 02: 311A 312A 321A 322A 330A 331A 331B 340A 351A 352A 352B 401D 401E	•MACT Reporting •*MACT S* •*MACT MM*	**Limits/Standards [State Only: No] :** The following are affected source(s) for this condition: •No.1 Continuous Digester System (02: 311A), •No. 2 Continuous Digester System (02: 312A), •No. 1 Brown Stock Washing System (02: 321A), •No. 2 Brown Stock Washing System (02: 322A), •No.1 Condensate Stripper System (02: 330A), •No. 2 NCG Incinerator (02: 331A), • Methanol Rectification System (02: 331B), •Turpentine System (02: 340A), • No.1 Evaporator System (02: 351A) , •No.2 Condensate Stripper System (02: 352A), •No.2 Evaporator System (02: 352B), •No.1 O_2-2 Washer Filtrate Tank (02: 401D), •No.1 O_2-1 Washer Filtrate tank (02: 401E), •No. 1 O_2 Blow Tank (02: 401J), •Twin Roll Pressate Tank (02: 401M), •No. 1 O_2 Washers (02: 401N), •No. 1 O_2 Blend Chest (401V), •No. 1 Twin Roll Presses (401W), •No. 2 O_2 Blow Tank/Interstage Chest (02: 402C), •No. 2 O_2 -1 Washer Pressate Tank (02: 402D), •No. 2 O_2 -2 Washer Pressate Tank (402E), •No. 2 O_2 Washers (02: 402H); •No. 1 Bleach Plant (03: 401U), •No. 2 Bleach Plant (402A); •No. 1 Lime Kiln (05: 371A), •No. 2 Lime Kiln (05: 372A); •No. 1 Recovery Furnace (06: 381A), •No. 2 Recovery Furnace (06: 382A), No. 1 Smelt

Conditions For 40 CFR Part 63 (MACT) Affected Sources			
Condition No.	**Equip ID**	**Regulated Pollutant/ *Standard***	**Conditions**
	401J 401M 401N 401V 401W 402C 402D 402E 402H ID 03: 401U 402A ID 05: 371A 372A ID 06: 381A 382A 381C 382B ID 07: 501A 502A		Dissolving Tank (06: 381C), •No. 2 Smelt Dissolving Tank (382B); •No. 1 Power Boiler (07: 501A), •No. 2 Power Boiler (07: 502A) The affected sources are subject to all applicable limits and requirements codified in the following regulations: □ *NESHAP 40 CFR Subpart A {General Provisions};S {National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry}; and SC Reg. 61-62.63, Subparts A and S (MACT S)]* □ *[NESHAP 40 CFR 63, Subparts A {General Provisions}; MM {National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources A Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills}; and SC Reg. 61-62.63, Subparts A and MM (MACT MM)]* The affected sources are subject to all applicable notification and reporting requirements 40 CFR 63, Subpart A, MACT S, and MACT MM. **Testing:** Not Required **Monitoring/Record Keeping/Reporting/Other:** The affected sources are subject to all applicable notification and reporting requirements of 40 CFR 63, Subparts A, S, and MM A summary of potential specific notifications and reporting requirements for each affecte source incl udes, but is not limited to the requirements listed in Table I -1 of ATTACHMENT I. *[MACT S: {§§63.455(a)-63.455(b); §63.455(d)}]* *[MACT MM {§63.867(a)(1); §63.867(c)}]* *[Subpart A {§63.7(b); §63.7(c)(2)(i); §63.7(g); §63.8(e)(2); §63.(e)(3)(i); §63.8(e)(3)(i); §63.9(b); 63.9(c); §63.9(e); §63.9(g)-63.9(g)(2); §63.9(h); §63.9(j); §§63.10(d)(1)-63.10(d)(2); §§63.10(d)(4)-63.10(d)(5); §63.10(e)]*

C. NESHAP PART 63 PERIODIC REPORTING SCHEDULE SUMMARY

TABLE 7.C.1 NESHAP PART PERIODIC REPORTING SCHEDULE			
NESHAP Subpart	**Compliance Monitoring Report Submittal Frequency**	**Reporting Period**	**Report Due Date**
S MM JJJJ	Semiannual	January 1 through June 30 July 1 through December 31	Postmarked or delivered no later than 60 calendar days after the end of the semiannual reporting period.

Note:
(1) This table summarizes only the periodic compliance reporting schedule. Additional reports may be required. See specific Pa 63 Subpart for additional reporting requirements and associated schedule.
(2) This reporting schedule doesnot supersede any Federal reporting requirements including but not limited to 40 CFR 60, 61, ar 63. All Federal reports must meet the reporting time frames specified in the Federal standard unless the Department or EPA approves a change.

The MACT reporting schedule may be adjusted to coincide with the Title V period reporting schedule with prior approval in accordance with 63.10(a)(6). This request may be made 1 year after the compliance date for the associated MACT standard.

PART 8.0 TITLE V REPORTING REQUIREMENTS

A. TITLE V PERIODIC REPORTING SCHEDULE

TABLE 6.1 TITLE V PERIODIC REPORTING SCHEDULE		
Compliance Monitoring Report Submittal Frequency	**Reporting Period (Begins on the effective date of the permit)**	**Report Due Date**
Quarterly	January-March April-June July-September October-December	April 30th July 30th October 30th January 30th
Semiannual	January-June April-September July-December October-March	July 30th October 30th January 30th April 30th
Note: This reporting schedule does not supercede any Federal reporting requirements including but not limited to 40 CFR 60, 61, and 63. All Federal reports must meet the reporting time frames specified in the Federal standard unless the Department or EPA approves a change.		

B. TITLE V COMPLIANCE CERTIFICATION REPORTING SCHEDULE

TABLE 6.2 TITLE V COMPLIANCE CERTIFICATION REPORTING SCHEDULE		
Title V Compliance Certification Submittal Frequency	**Reporting Period (Begins on the effective date of the permit)**	**Report Due Date**
Annual	January-December April-March July-June October-September	February 14th May 15th August 14th November 14th

ATTACHMENT A

Modeled Emission Rates

International Paper-Eastover Mill

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The emission rates listed herein are not considered federally enforceable limitations but are used to evaluate ambient air quality impact. Until the Bureau makes a determination that a facility is causing or contributing to an exceedance of a state or federal ambient air quality standard, increases to these emission rates are not in themselves considered violations of these ambient air quality standards (see conditions 4.2 and 4.3).

AMBIENT AIR QUALITY STANDARDS - STANDARD 2					
STACK	Modeled Emission Rates (lbs/hr)				
	TSP	PM_{10} Annual	PM_{10} Short Term	SO_2 Annual	SO_2 Short Term
202SRC – No. 1 Bleach Plant Scrubber (Eq. ID 401C, F, O, P, U)	--	--	--	--	--
381A/501A – No. 1 Recovery Furnace/No. 1 Power Boiler	81.3	81.3	98.7	1161.9/1161.9	1375.1/1375.1
331A/382A – No. 2 NCG Incinerator/No. 2 Recovery Furnace	48.8	48.8	64.2	929.8/502.3	1116.3/666.3
502A – No. 2 Power Boiler	26.9	26.9	27	142.7/175.2	233.6/963.5
381C – No. 1 Smelt Dissolving Tank	8.8	8.8	11	2.7/2.7	3.5/3.5
382B – No. 2 Smelt Dissolving Tank	17.5	17.5	21.3	6.2/6.2	7.8/7.8
371A – No. 1 Lime Kiln	17.5	17.5	26.3	7.1/7.1	9.2/9.2
372A – No. 2 Lime Kiln	18.2	18.2	27.3	2.1/2.1	13.1/13.1
360C – No. 1 Green Liquor Slaker	1.97	1.97	1.97	--	--
361F – No. 2 Green Liquor Slaker	1.97	1.97	1.97	--	--
371C – Fresh Lime System	2.16	2.16	2.16	--	--
401CREV – No. 1 O2 Washers	--	--	--	--	--
402AREV – No. 2 Bleach Plant	--	--	--	--	--
402H – No. 2 O2 Washers	--	--	--	--	--
460A – No. 1 Starch System	0.18	0.18	0.18	--	--
460B – No. 2 Starch System	0.18	0.18	0.18	--	--
96SRC – No. 1 Carbonator	0.96	0.96	0.96	0.66	0.83
97SRC – No. 2 Carbonator	0.96	0.96	0.96	0.66	0.83
98SRC – No. 3 Carbonator	0.96	0.96	0.96	0.66	0.83

Note: Emission rates for SO_2 are listed for Scenario1/Scenario 2, respectively.

AMBIENT AIR QUALITY STANDARDS - STANDARD 2					
STACK	Modeled Emission Rates (lbs/hr)				
	NO_2	CO	HF	LEAD	SO_2 Short Term
202SRC – No. 1 Bleach Plant Scrubber (Eq. ID 401C, F, O, P, U)	--	36.3	--	--	
381A/501A – No. 1 Recovery Furnace/No. 1 Power Boiler	542.7	130.8	--	--	
331A/382A – No. 2 NCG Incinerator/No. 2 Recovery Furnace	377	802.6	--	--	
502A – No. 2 Power Boiler	150	500	0.206	0.00685	
381C – No. 1 Smelt Dissolving Tank	2	--	--	--	

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Modeled Emission Rates

International Paper-Eastover Mill

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AMBIENT AIR QUALITY STANDARDS - STANDARD 2					
STACK	Modeled Emission Rates (lbs/hr)				
	NO_2	CO	HF	LEAD	SO_2 Short Term
382B – No. 2 Smelt Dissolving Tank	3.9	--	--	--	
371A – No. 1 Lime Kiln	46.8	458.3	--	--	
372A – No. 2 Lime Kiln	55	6.6	--	--	
360C – No. 1 Green Liquor Slaker	--	--	--	--	
361F – No. 2 Green Liquor Slaker	--	--	--	--	
371C – Fresh Lime System	--	--	--	--	
401CREV – No. 1 O2 Washers	--	5.7	--	--	
402AREV – No. 2 Bleach Plant	--	55.9	--	--	
402H – No. 2 O2 Washers	--	9.4	--	--	
460A – No. 1 Starch System	--	--	--	--	
460B – No. 2 Starch System	--	--	--	--	
96SRC – No. 1 Carbonator	13.97	112.7	--	--	
97SRC – No. 2 Carbonator	13.97	112.7	--	--	
98SRC – No. 3 Carbonator	13.97	112.7	--	--	

PSD CLASS II INCREMENT EMISSION RATES					
SOURCE IDENTIFICATION	Emissions (lb/hr)				
	PM_{10} Annual	PM_{10} Short Term	SO_2 Annual	SO_2 Short Term	NO_2
381A/501A – No. 1 Recovery Furnace/No. 1 Power Boiler	81.3	98.7	1161.9/1161.9	1375.1/1375.1	21.6
331A/382A – No. 2 NCG Incinerator/No. 2 Recovery Furnace	48.8	64.2	929.8/502.3	1116.3/666.3	377
502A – No. 2 Power Boiler	26.9	27	142.7/175.2	233.6/963.5	150
381C – No. 1 Smelt Dissolving Tank	8.8	11	2.7/2.7	3.5/3.5	0.2
382B – No. 2 Smelt Dissolving Tank	17.5	21.3	6.2/6.2	7.8/7.8	3.9
371A – No. 1 Lime Kiln	17.5	26.3	7.1/7.1	9.2/9.2	--
372A – No. 2 Lime Kiln	18.2	27.3	2.1/2.1	13.1/13.1	55
360C – No. 1 Green Liquor Slaker	1.97	1.97	--	--	--
361F – No. 2 Green Liquor Slaker	1.97	1.97	--	--	--
371C – Fresh Lime System	2.16	2.16	--	--	--
460A – No. 1 Starch System	0.18	0.18	--	--	--
460B – No. 2 Starch System	0.18	0.18	--	--	--
96SRC – No. 1 Carbonator	0.96	0.96	0.66	0.83	13.97

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Modeled Emission Rates

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PSD CLASS II INCREMENT EMISSION RATES					
SOURCE IDENTIFICATION	Emissions (lb/hr)				
	PM_{10} Annual	PM_{10} Short Term	SO_2 Annual	SO_2 Short Term	NO_2
97SRC – No. 2 Carbonator	0.96	0.96	0.66	0.83	13.97
98SRC – No. 3 Carbonator	0.96	0.96	0.66	0.83	13.97

AIR TOXICS – LEVEL I DE MINIMIS ANALYSIS			
POLLUTANT	CAS NUMBER	EMISSION RATE (LBS/DAY)	DE MINIMIS (LBS/DAY)
Antimony Compounds		0.000	0.030
Arsenic	7440-38-2	0.011	0.012
Benzene	71-43-2	0.915	1.800
Beryllium	7440-41-7	0.000	0.000
Bis (2-Ethylhexyl) phthalate	117-81-7	0.000	0.300
Cadmium	7440-43-9	0.001	0.003
Carbon Disulfide	75-15-0	1.025	1.800
Carbon Tetrachloride	56-23-5	0.054	1.800
Chlorobenzene	108-90-7	1.585	20.700
Chloroform	67-66-3	0.175	3.000
Chromium +6 Compounds		0.000	0.030
Cresols	1319-77-3	0.000	1.326
p-Dichlorobenzene	106-46-7	0.000	54.000
Ethylbenzene	100-41-4	0.000	52.200
Ethylene Dibromide	106-93-4	0.000	9.240
Ethylene Dichloride	107-06-2	0.016	2.400
Hexachlorobenzene	118-74-1	0.000	+
Hexachlorocyclopentadiene	77-47-4	0.000	0.006

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Modeled Emission Rates

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AIR TOXICS – LEVEL I DE MINIMIS ANALYSIS			
POLLUTANT	CAS NUMBER	EMISSION RATE (LBS/DAY)	DE MINIMIS (LBS/DAY)
Hexachloroethane	67-72-1	0.000	0.582
Hexane	110-54-3	0.082	10.800
Manganese Compounds		0.072	0.300
Methyl Bromide	74-83-9	0.000	1.200
Methyl Chloride	74-87-3	0.000	6.180
Methyl Chloroform	71-55-6	0.139	114.600
Methyl Ethyl Ketone	78-93-3	20.119	177.000
Methyl Iodide	74-88-4	0.000	0.696
Methyl Isobutyl Ketone	108-10-1	7.775	24.600
Methylene Chloride	75-09-2	0.201	105.000
Naphthalene	91-20-3	0.133	15.000
Nitric Acid	7697-37-2	0.734	1.500
Phenol	108-95-2	0.205	2.280
Phosphoric Acid	7664-38-2	0.148	0.300
Phosphorus	7723-14-0	0.000	0.006
Polycyclic Organic Matter		0.000	1.920
Propionaldehyde	123-38-6	0.105	+
Selenium Compounds		0.000	0.012
Styrene	100-42-5	5.852	63.900
Tetrachloroethylene	127-18-4	20.236	40.200
Toluene	108-88-3	1.760	24.000
1,1,2-Trichloroethane	79-00-5	0.129	3.276
Trichloroethylene	79-01-6	0.458	81.000
2,4,5-Trichlorophenol	95-95-4	0.493	+

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Modeled Emission Rates

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AIR TOXICS – LEVEL I DE MINIMIS ANALYSIS			
POLLUTANT	**CAS NUMBER**	**EMISSION RATE (LBS/DAY)**	**DE MINIMIS (LBS/DAY)**
Vinyl Acetate	108-05-4	0.000	2.112
Xylene	1330-20-7	8.097	52.200
m-Xylene	108-38-3	1.228	52.200
o-Xylene	95-47-6	6.440	52.200
p-Xylene	106-42-3	1.228	52.200

AIR TOXIC EMISSION RATES		
SOURCE IDENTIFICATION	**Acrolein (LBS/DAY)**	**Formaldehyde (LBS/DAY)**
401H – White Liquor Oxidation Tank	--	0.0403
502A – No. 2 Power Boiler	--	4.608
63SRC – No. 1 Paper Machine	4.5296	23.9091
77SRC – No. 2 Paper Machine	4.28	22.60
101SRC – North Caustic Area (360A, 360H, 361A, 361B, 361C, 361EN, 361H, 361I)	0.04	1.05
102SRC – South Caustic Area (360B, 360D, 360F, 360G, 360I, 360J, 360K, 360L, 360M, 360N, 360O, 361ES, 361G, 361J)	0.09	0.93
106SRC – Condensate Stripping and Evaporators (330B, 351B, 351C, 352C, 352D)	--	0.24
114SRC – Pulp Machine Fugitives (441A)	1.10	--
117SRC – Hydrapulper Equipment	--	0.0904
FACILITY TOTAL	10.04	53.4678

The facility is subject to 40 CFR 63, Subparts S, and MM. The affected units for these standards are exempted from SC Reg. 61-62.5, Std. 8; therefore, only toxic air compound for units not subject to the federal standards are modeled.

ATTACHMENT B

Insignificant Activities

International Paper-Eastover Mill
TV-1900-0046

The following table contains a list of activities which are considered insignificant pursuant to South Carolina Regulation 61 -62.70.5(c). Sources listed below are not exempt from any otherwi se applicable state or federal requirements including, but not limited to, opacity standards, ambient air quality standards, and air toxic standards.

ID	Equipment ID	General Description	Installation Date	Basis
		Pulp Mill/Oxygen Delignification		
02	311B	No. 1 Chip Chute Dump Tank	Feb 25, 1982	Emission levels
02	312B	No. 2 Chip Chute Dump Tank	Feb 25, 1982	Emission levels
02	321C	No. 2 Spill Prevention Catch Tank	Feb 25, 1982	Emission levels
02	322B	No. 2 Spill Prevention Catch Tank	July 31, 1989	Emission levels
02	321B	Fibers Bulk Defoamer Tank	Feb 25, 1982	Emission levels
02	401G	No. 1 O2 HD Chest	Feb 25, 1982	Emission levels
02	402F	No. 2 O_2 HD Chest	July 31, 1989	Emission levels
		Bleaching		
03	401B	Bleached Transition High Density (HD) Chest	Feb 25, 1982	Emission levels
03	401Q	No.1 Bleached Hardwood HD Chest	Feb 25, 1982	Emission levels
03	401R	No.2 Bleached Hardwood HD Chest	Feb 25, 1982	Emission levels
03	401S	No.1 Bleached Pine HD Chest	Feb 25, 1982	Emission levels
03	401T	No.2 Bleached Pine HD Chest	Feb 25, 1982	Emission levels
03	411A	Brine Collection Tanks (3 B total)	Feb 25, 1982	Emission levels
03	402J	No.3 Bleached Hardwood HD Chest	Jan 03, 1996	Emission levels
03	900L	Chlorine Dioxide Plant Sulfuric Acid Storage Tank	July 31, 1989	Emission levels
03	900M	Chlorine Dioxide Plant Sulfuric Acid Day Tank	July 31, 1989	Emission levels
03	900Q	Bleach Plant Sulfuric Acid Day Tank	July 31, 1989	Emission levels
		Finished Products		
04	451A	Pine Low Density Chest	Feb 25, 1982	Emission levels
04	451B	Hardwood Low Density Chest	Feb 25, 1982	Emission levels
04	451C	Low Density Broke Chest	Feb 25, 1982	Emission levels
04	452A	Density Broke Chest	Feb 25, 1982	Emission levels
04	452B	Low Density Broke Chest	Feb 25, 1982	Emission levels
04	452C	High Density Broke Swing Tower	Oct 02, 1995	Emission levels
04	460C	Retention Aid Polymer Storage Tank	Feb 25, 1982	Emission levels
04	900O	Pulp Machine Nitric Acid Storage Tanks (2 tanks)	July 31, 1989	Emission levels
		Recausticizing		
05	371B	No. 2 Fuel Oil Bulk Tank	Feb 25, 1982	Emission levels
05	900I	Nitric/Phosphoric Acid Storage Tank	Feb 25, 1982	Emission levels
		Chemical Recovery		
06	330C	No. 2 Fuel Oil Day Process Tank	Feb 25, 1982	Emission levels
		Power Boilers		
07	510A	No. 6 Fuel Oil Bulk Tank	Feb 25, 1982	Emission levels
07	510B	No. 6 Fuel Oil Day Process Tank	Feb 25, 1982	Emission levels
07	511A	No. 6 Low Sulfur Fuel Oil Bulk Tank	July 31, 1989	Emission levels
07	511B	No. 6 Low Sulfur Fuel Oil Day Process Tank	July 31, 1989	Emission levels

ATTACHMENT B

Insignificant Activities

International Paper-Eastover Mill

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ID	Equipment ID	General Description	Installation Date	Basis
		No. 1 Turbine Generator (Sustained rating - 50 megawatts)	Feb 25, 1982	Emission levels
		No. 2 Turbine Generator (Sustained rating - 60 megawatts)	July 31, 1989	Emission levels
Miscellaneous				
M	900F	Portable Compressors	N/A	Insignificant activities list
M	900G	Portable Generators	N/A	Insignificant activities list
M	900H	Portable Pumps	N/A	Insignificant activities list
M	900N	Water Treatment Sulfuric Acid Storage Tank	Feb 25, 1982	Insignificant Activities list
M	900P	Emergency internal combustion engines	N/A	Insignificant Activities list

ATTACHMENT C

Applicable and Non-Applicable Federal and State Regulations

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The following contains the Federal and South Carolina air pollution regulations, which were specified in the Part 70, permit application and determined as applicable and non-applicable by the Bureau as of the date of this permit issuance. This attachment may be revised by the Bureau in the event of a change in the nature or emission of pollutants at the source or promulgation of new or revised regulations.

Table C-1 Permit Shield

Regulation/Citation	Description	Applicable (Y/N)	Standard Reason Indicator	Emission Unit ID	Comments (Use when choosing Indicator "J")
SC Reg. 61-62.1	Definitions	**Y**	D	Facility	
SC Reg. 61-62.2	Prohibition of Open Burning	**Y**	D	Facility	
SC Reg. 61-62.3	Air Pollution Episodes	N	J	None	Commissioner criteria
SC Reg. 61-62.4	Hazardous Air Pollution Conditions	**Y**	D	Facility	
SC Reg. 61-62.5, Std. 1	Emissions from Fuel Burning Operations	**Y**	I	07	
SC Reg. 61-62.5, Std. 2	Ambient Air Standards	**Y**	D	Facility	
SC Reg. 61-62.5, Std. 3	Waste Combustion and Reduction	**Y**	I	05, 07	
SC Reg. 61-62.5, Std. 3.1	Hospital, Medical, Infectious Waste Incinerators (HMIWI)	N	A	None	
SC Reg. 61-62.5, Std. 4	Emissions from Process Industries	**Y**	I	Facility	
SC Reg. 61-62.5, Std. 5	Volatile Organic Compounds	N	A	None	
SC Reg. 61-62.5, Std. 5.1	LAER/BACT Applicable to VOC	N	J	Facility	The Net increase in VOC from 1979 baseline is less than 100 tons
SC Reg. 61-62.5, Std. 5.2	Control of Oxides of Nitrogen	**Y**	I	05, 06, 07	
SC Reg. 61-62.5, Std. 6	Alternative Emission Limitation Options	N	A	None	
SC Reg. 61-62.5, Std. 7	Prevention of Significant Deterioration	**Y**	I	01, 02, 03. 04, 05, 06, 07	
SC Reg. 61-62.5, Std. 7.1	Non-attainment New Source Review	N	H	None	
SC Reg. 61-62.5, Std. 8	Toxic Air Pollutants	**Y**	D	Facility	
SC Reg. 61-62.6	Control of Fugitive Particulate Matter	**Y**	I	01	
SC Reg. 61-62.7	Good Engineering Practice Stack Heights	**Y**	D	Facility	
SC Reg. 61-62.60	SC Designated Facility Plan and New Source Performance Standards	**Y**	I	02, 05, 06, 07	Subparts A, BB, D, Db, Kb, only
SC Reg. 61-62.63	National Emission Standards for Hazardous Air Pollutants	**Y**	I	02, 03, 05, 06, 07	Subparts A,S, MM, and DDDDD only
SC Reg. 61-62.68	Chemical Accident Prevention Program	**Y**	D	03	Chlorine Dioxide
SC Reg. 61-62.70	Title V Operating Permit Program	**Y**	J	Facility	Existing facility is currently a major source and possesses a Title V operating permit
SC Reg. 61-62.72	Acid Rain	N	A	None	
SC Reg. 61-62.96	Nitrogen Oxides (NOx) Budget Trading Program	**Y**	I	07	

ATTACHMENT C

Applicable and Non-Applicable Federal and State Regulations

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
SC Reg. 61-62.99	NOx Trading Program Requirements for Stationary Sources Not in the Trading Program	N	A	None	
40 CFR 50	National Primary and Secondary Ambient Air Quality Standards	**Y**	D	Facility	
40 CFR 51	Requirements for Preparation, Adoption, and Submittal of Implementation Plans	**Y**	D	Facility	
40 CFR 52	Approval and Promulgation of Implementation Plans	**Y**	D	Facility	
40 CFR 53	Ambient Air Monitoring Reference and Equivalent Methods	N	J	None	Requirements for State agencies
40 CFR 54	Prior Notice of Citizen Suits	N	J	None	Requirements for State agencies
40 CFR 55	Outer Continental Shelf Air Regulations	N	A	None	
40 CFR 56	Regional Consistency	N	J	None	Requirements for State agencies
40 CFR 57	Primary Nonferrous Smelter Orders	N	A	None	
40 CFR 58	Ambient Air Quality Surveillance	N	J	None	
40 CFR 59	National Volatile Organic Compound Emission Standard for Consumer and Commercial Products	N	A	None	
40 CFR 60 subpart A	General Provisions	**Y**	I	02, 05, 06, 07	
40 CFR 60 subpart B	Adoption and Submittal of State Plans for Designated Facilities	N	A	None	
40 CFR 60 subpart C	Emission Guidelines and Compliance Times	N	A	None	
40 CFR 60 subpart Cb	Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors that are Constructed on or Before September 20, 1994	N	A	None	
40 CFR 60 subpart Cc	Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills	N	A	None	
40 CFR 60 subpart Cd	Emissions Guidelines and Compliance Times for Sulfuric Acid Production Units	N	A	None	
40 CFR 60 subpart Ce	Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators	N	A	None	
40 CFR 60 subpart D	Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971	**Y**	I	07	
40 CFR 60, Subpart Da	Electric Utility Steam Generated Units	N	A	None	
40 CFR 60, Subpart Db	Institutional Steam Generating Units	**Y**	I	07	
40 CFR 60, Subpart Dc	Small Industrial Commercial	N	A	None	

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
	Institutional Steam Generating Units				
40 CFR 60, Subpart E	Incinerators	N	A	None	
40 CFR 60, Subpart Ea	Municipal Waste Combustors	N	A	None	
40 CFR 60, Subpart Eb	Large Municipal Waste Combustors	N	A	None	
40 CFR 60, Subpart Ec	Hospital/Medical/Infectious Waste Incinerators	N	A	None	
40 CFR 60, Subpart F	Portland Cement Plants	N	A	None	
40 CFR 60, Subpart G	Nitric Acid Plants	N	A	None	
40 CFR 60, Subpart H	Sulfuric Acid Plants	N	A	None	
40 CFR 60, Subpart J	Petroleum Refineries	N	A	None	
40 CFR 60, Subpart K	Storage Vessels for Petroleum Liquids	N	A	None	
40 CFR 60, Subpart Ka	Storage Vessels for Petroleum Liquids	N	A	None	
40 CFR 60, Subpart Kb	Volatile Organic Liquid Storage Vessels	**Y**	I	03	
40 CFR 60, Subpart L	Secondary Lead Smelters	N	A	None	
40 CFR 60, Subpart M	Secondary Brass and Bronze Production Plants	N	A	None	
40 CFR 60, Subpart N	Primary Emissions from Basic Oxygen Furnaces	N	A	None	
40 CFR 60, Subpart Na	Iron and Steel Plants	N	A	None	
40 CFR 60, Subpart O	Sewage Treatment Plants	N	A	None	
40 CFR 60, Subpart P	Primary Copper Smelters	N	A	None	
40 CFR 60, Subpart Q	Primary Zink Smelters	N	A	None	
40 CFR 60, Subpart R	Primary Lead Smelters	N	A	None	
40 CFR 60, Subpart S	Primary Aluminum Reduction Plants	N	A	None	
40 CFR 60, Subpart T	Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plants	N	A	None	
40 CFR 60, Subpart U	Phosphate Fertilizer Industry: Superphosphoric Acid Plants	N	A	None	
40 CFR 60, Subpart V	Phosphate Fertilizer Industry: Diammonium Phosphate Plants	N	A	None	
40 CFR 60, Subpart W	Phosphate Fertilizer Industry: Triple Superphosphate Plants	N	A	None	
40 CFR 60, Subpart X	Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities	N	A	None	
40 CFR 60, Subpart Y	Coal Preparation Plants	**Y**	I	07	
40 CFR 60, Subpart Z	Ferroalloy Production Facilities	N	A	None	
40 CFR 60, Subpart AA	Steal Plants: Electric Arc Furnaces	N	A	None	
40 CFR 60, Subpart AAa	Steal Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels	N	A	None	
40 CFR 60, Subpart BB	Standards Of Performance For Kraft Pulp Mills	**Y**	I	02, 05, 06	
40 CFR 60, Subpart CC	Glass Manufacturing Plants	N	A	None	
40 CFR 60, Subpart DD	Grain Elevators	N	A	None	
40 CFR 60, Subpart EE	Surface Coating of Metal Furniture	N	A	None	

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Applicable and Non-Applicable Federal and State Regulations

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
40 CFR 60, Subpart FF	Reserved	N	A	None	
40 CFR 60, Subpart GG	Stationary Gas Turbines	N	A	None	
40 CFR 60, Subpart HH	Lime Manufacturing Plants	N	A	None	
40 CFR 60, Subpart KK	Lead Acid Battery Manufacturing Plants	N	A	None	
40 CFR 60, Subpart LL	Metallic Mineral Processing Plants	N	A	None	
40 CFR 60, Subpart MM	Automobile and Light Duty Truck Surface Coating Operations	N	A	None	
40 CFR 60, Subpart NN	Phosphate Rock Plants	N	A	None	
40 CFR 60, Subpart PP	Aluminum Sulfate Manufacturing Plants	N	A	None	
40 CFR 60, Subpart QQ	Graphics Arts Industry: Publication Rotogravure Printing	N	A	None	
40 CFR 60, Subpart RR	Pressure Sensitive Tape and Label Surface Coating Operations	N	A	None	
40 CFR 60, Subpart SS	Industrial Surface Coating: Large Appliances	N	A	None	
40 CFR 60, Subpart TT	Metal Coil Surface Coating	N	A	None	
40 CFR 60, Subpart UU	Asphalt Processing and Asphalt Roofing Manufacturing	N	A	None	
40 CFR 60, Subpart VV	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	N	A	None	
40 CFR 60, Subpart WW	Beverage Can Surface Coating Industry	N	A	None	
40 CFR 60, Subpart XX	Bulk Gasoline Terminals	N	A	None	
40 CFR 60, Subpart AAA	New Residential Wood Heaters	N	A	None	
40 CFR 60, Subpart BBB	Rubber Tire Manufacturing Industry	N	A	None	
40 CFR 60, Subpart CCC	Reserved	N	A	None	
40 CFR 60, Subpart DDD	Polymer Manufacturing Facility	N	A	None	
40 CFR 60, Subpart EEE	Reserved	N	A	None	
40 CFR 60, Subpart FFF	Flexible Vinyl and Urethane Coating and Printing	N	A	None	
40 CFR 60, Subpart GGG	Equipment Leaks of VOC in Petroleum Refineries	N	A	None	
40 CFR 60, Subpart HHH	Synthetic Fiber Production Facilities	N	A	None	
40 CFR 60, Subpart III	VOC Emissions from Synthetic Organic Chemical Manufacturing Industry Air Oxidation Unit Process	N	A	None	
40 CFR 60, Subpart JJJ	Petroleum Dry Cleaners	N	A	None	
40 CFR 60, Subpart KKK	Onshore Natural Gas Processing Plants	N	A	None	
40 CFR 60, Subpart LLL	Oneshore Natural Gas ProcessingL SO_2 Emissions	N	A	None	
40 CFR 60, Subpart MMM	Reserved	N	A	None	
40 CFR 60, Subpart NNN	Synthetic Organic Chemical Manufacturing Industry Distilation Operations	N	A	None	
40 CFR 60, Subpart OOO	Nonmetallic Mineral Process Plants	N	A	None	
40 CFR 60, Subpart PPP	Wool Fiberglass Insulation Manufacturing Plants	N	A	None	

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
40 CFR 60, Subpart QQQ	Petroleum Refinery Wastewater VOC Emissions	N	A	None	
40 CFR 60, Subpart RRR	Synthetic Organic Chemical Manufacturing Industrial Reactor Processes	N	A	None	
40 CFR 60, Subpart SSS	Magnetic Tape Coating Facilities	N	A	None	
40 CFR 60, Subpart TTT	Industrial Surface Coating: Plastic Parts for Business Machines	N	A	None	
40 CFR 60, Subpart UUU	Calciners and Dryers in Minerals Industries	N	A	None	
40 CFR 60, Subpart VVV	Polymeric Coating of Supporting Substrates Facilities	N	A	None	
40 CFR 60, Subpart WWW	Municipal Solid Waste Landfills	N	A	None	
40 CFR 60, Subpart YYY	Synthetic Organic Chemical Manufacturing Industrial Wastewater	N	A	None	
40 CFR 61, Subpart A	General Provisions	N	A	None	
40 CFR 61, Subpart B	Radon Emissions from Underground Uranium Mines	N	A	None	
40 CFR 61, Subpart C	Beryllium	N	A	None	
40 CFR 61, Subpart D	Beryllium Rocket Motor Firing	N	A	None	
40 CFR 61, Subpart E	Mercury	N	A	None	
40 CFR 61, Subpart F	Vinyl Chloride	N	A	None	
40 CFR 61, Subpart G	Revised	N	A	None	
40 CFR 61, Subpart H	Emissions of Radionuclides Other than Radon from Department of Energy (DOE) Facilities	N	A	None	
40 CFR 61, Subpart I	Radionuclide Emissions from Facilities Licensed by the Nuclear Regulatory Commission (NRC) and Federal Facilities not Covered by Subpart H	N	A	None	
40 CFR 61, Subpart J	Equipment Leaks (Fugitive Emission Sources) of Benzene	N	A	None	
40 CFR 61, Subpart K	Radionuclide Emissions from Elemental Phosphorous Plants	N	A	None	
40 CFR 61, Subpart L	Benzene Emissions from Coke By Product Recovery Plants	N	A	None	
40 CFR 61, Subpart M	Asbestos	N	A	None	
40 CFR 61, Subpart N	Inorganic Arsenic Emissions from Glass Manufacturing	N	A	None	
40 CFR 61, Subpart O	Inorganic Arsenic Emissions from Primary Copper Smelters	N	A	None	
40 CFR 61, Subpart P	Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities	N	A	None	
40 CFR 61, Subpart Q	Radon Emissions from Department of Energy (DOE) Facilities	N	A	None	
40 CFR 61, Subpart R	Radon Emissions from Phosphogypsum Stacks	N	A	None	

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
40 CFR 61, Subpart S	Reserved	N	A	None	
40 CFR 61, Subpart T	Radon Emissions from the Disposal of Uranium Mill Tailings	N	A	None	
40 CFR 61, Subpart U	Reserved	N	A	None	
40 CFR 61, Subpart V	Equipment Leaks (Fugitive Emission Sources)	N	A	None	
40 CFR 61, Subpart W	Radon Emissions from Operating Mill Tailings	N	A	None	
40 CFR 61, Subpart X	Reserved	N	A	None	
40 CFR 61, Subpart Y	Benzene Emissions from Benzene Storage Vessels	N	A	None	
40 CFR 61, Subpart Z	Reserved	N	A	None	
40 CFR 61, Subpart AA	Reserved	N	A	None	
40 CFR 61, Subpart BB	Benzene Emissions from Benzene Transfer Operations	N	A	None	
40 CFR 61, Subpart CC	Reserved	N	A	None	
40 CFR 61, Subpart DD	Reserved	N	A	None	
40 CFR 61, Subpart EE	Reserved	N	A	None	
40 CFR 61, Subpart FF	Benzene Waste Operations	N	A	None	
40 CFR 62	Approval and Promulgation of State Plans for Designated Facilities and Pollutants	N	J	None	Requirements for State agencies
40 CFR 63, Subpart A	General Provisions	**Y**	I	02, 03, 05, 06, 07	
40 CFR 63, Subpart B	Requirements For Control Technology Determinations For Major Sources In Accordance With Clean Air Act Sections, Sections 112(g) And 112(j)	N	A	None	
40 CFR 63, Subpart C	List of Hazardous Air Pollutants, Petition Process, Lesser Quantity Designations, Source Category List	**Y**	I	02, 03, 05, 06, 07	
40 CFR 63, Subpart D	Compliance Extensions for Early Reductions of HAPs	N	A	None	
40 CFR 63, Subpart E	Approval for State Programs and Delegation of Federal Authorities	N	A	None	
40 CFR 63, Subpart F	Organic Hazardous Air Pollution for the Synthetic Organic Chemical Manufacturing Industry (SOCMI)	N	A	None	
40 CFR 63, Subpart G	Organic Hazardous Air Pollutants form SOCMI for Process Vents, Storage Vessels, Transfer Operations, and Wastewater	N	A	None	
40 CFR 63, Subpart H	Hazardous Organic Standards for Equipment Leaks	N	A	None	
40 CFR 63, Subpart I	Processes Subject to Negotiated Regulation for Equipment Leaks	N	A	None	
40 CFR 63, Subpart J	Polyvinyl Chloride and Copolymers	N	A	None	

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
	Production				
40 CFR 63, Subpart K	Reserved	N	A	None	
40 CFR 63, Subpart L	Coke Oven Batteries	N	A	None	
40 CFR 63, Subpart M	Perchloroethylene Air Standard for Dry Cleaning	N	A	None	
40 CFR 63, Subpart N	Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks	N	A	None	
40 CFR 63, Subpart O	Ethylene Oxide Emissions for Sterilization Facilities	N	A	None	
40 CFR 63, Subpart P	Reserved	N	A	None	
40 CFR 63, Subpart Q	Industrial Process Cooling Towers	N	A	None	
40 CFR 63, Subpart R	Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations	N	A	None	
40 CFR 63, Subpart S	National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry	**Y**	I	02, 03	
40 CFR 63, Subpart T	Halogenated Solvent Cleaning	N	A	None	
40 CFR 63, Subpart U	Group I Polymers and Resins	N	A	None	
40 CFR 63, Subpart V	Reserved	N	A	None	
40 CFR 63, Subpart W	Epoxy Resins and Non-Nylon Polyamides Production	N	A	None	
40 CFR 63, Subpart X	Secondary Lead Smelting	N	A	None	
40 CFR 63, Subpart Z	Marine Tank Vessel Loading Operations	N	A	None	
40 CFR 63, Subpart AA	Phosphoric Acid Manufacturing Plants	N	A	None	
40 CFR 63, Subpart BB	Phosphate Fertilizers Production Plants	N	A	None	
40 CFR 63, Subpart CC	Petroleum Refineries	N	A	None	
40 CFR 63, Subpart DD	Off-Site Waste and Recovery Operations	N	A	None	
40 CFR 63, Subpart EE	Magnetic Tape Manufacturing Operations	N	A	None	
40 CFR 63, Subpart FF	Reserved	N	A	None	
40 CFR 63, Subpart GG	Aerospace Manufacturing and Re-work Facilities	N	A	None	
40 CFR 63, Subpart HH	Oil and Natural Gas Production Facilities	N	A	None	
40 CFR 63, Subpart II	Shipbuilding and Ship Repair (Surface Coating)	N	A	None	
40 CFR 63, Subpart JJ	Wood Furniture Manufacturing	N	A	None	
40 CFR 63, Subpart KK	Printing and Publishing Industry	N	A	None	
40 CFR 63, Subpart LL	Primary Aluminum Reduction Plants	N	A	None	
40 CFR 63, Subpart MM	National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills	**Y**	I	05, 06	
40 CFR 63, Subpart NN	Reserved	N	J	None	Reserved
40 CFR 63, Subpart OO	Tanks-Level I	N	A	None	

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
40 CFR 63, Subpart PP	Containers	N	A	None	
40 CFR 63, Subpart QQ	Surface Impoundments	N	A	None	
40 CFR 63, Subpart RR	Individual Drains	N	A	None	
40 CFR 63, Subpart SS	Closed Vent Systems, Control Devices, Recovery Devices, and Routing to Fuel Gas System or a Process	N	A	None	
40 CFR 63, Subpart TT	Equipment Leaks-Control Level 1 Standards	N	A	None	
40 CFR 63, Subpart UU	Equipment Leaks-Control Level 2 Standards	N	A	None	
40 CFR 63, Subpart VV	Oil-Water Separators and Organic-Waste Separators	N	A	None	
40 CFR 63, Subpart WW	Storage Vessels (Tanks)-Control Level 2	N	A	None	
40 CFR 63, Subpart XX	Ethylene Manufacturing Process Units-Heat Exchange Systems and Waste	N	A	None	
40 CFR 63, Subpart YY	Generic Maximum Achievable Control Technology Standards	N	A	None	
40 CFR 63, Subpart ZZ	Reserved	N	J	None	Reserved
40 CFR 63, Subpart AAA	Reserved	N	J	None	Reserved
40 CFR 63, Subpart BBB	Reserved	N	J	None	Reserved
40 CFR 63, Subpart CCC	Steel Pickling-HCl Process Facilities and Hydrochloric Acid Regeneration Plants	N	A	None	
40 CFR 63, Subpart DDD	Mineral Wool Products	N	A	None	
40 CFR 63, Subpart EEE	Hazardous Waste Combustors	N	A	None	
40 CFR 63, Subpart FFF	Reserved	N	A	None	
40 CFR 63, Subpart GGG	Pharmaceuticals Production	N	A	None	
40 CFR 63, Subpart HHH	Natural Gas Transmission and Storage Facilities	N	A	None	
40 CFR 63, Subpart III	Flexible Polyurethane Foam Production	N	A	None	
40 CFR 63, Subpart JJJ	Group IV Polymers and Resins	N	A	None	
40 CFR 63, Subpart KKK	Reserved	N	A	None	
40 CFR 63, Subpart LLL	Portland Cement Manufacturing Industry	N	A	None	
40 CFR 63, Subpart MMM	Pesticide Active Ingredient Production	N	A	None	
40 CFR 63, Subpart NNN	Wood Fiberglass Manufacturing	N	A	None	
40 CFR 63, Subpart OOO	Amino/Phenolic Resins Manufacturing	N	A	None	
40 CFR 63, Subpart PPP	Polyester Polyols Production	N	A	None	
40 CFR 63, Subpart QQQ	Primary Copper Smelters	N	A	None	
40 CFR 63, Subpart RRR	Secondary Aluminum Production	N	A	None	
40 CFR 63, Subpart SSS	Reserved	N	A	None	
40 CFR 63, Subpart TTT	Primary Lead Smelting	N	A	None	
40 CFR 63, Subpart UUU	Petroleum Refineries-Catalytic Cracking (Fluid and Other) Units , Catalytic Reforming Units, and Sulfur Plants	N	A	None	
40 CFR 63, Subpart VVV	Publicly Owned Treatment Works	N	A	None	
40 CFR 63, Subpart WWW	Reserved	N	J	None	Reserved

ATTACHMENT C

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Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
40 CFR 63, Subpart XXX	Ferroalloys Production-Ferromanganese and Silicomanganese	N	A	None	
40 CFR 63, Subpart YYY	Reserved	N	J	None	Reserved
40 CFR 63, Subpart ZZZ	Reserved	N	J	None	Reserved
40 CFR 63, Subpart AAAA	Municipal Solid Waste Landfills	N	A	None	
40 CFR 63, Subpart BBBB	Reserved	N	J	None	Reserved
40 CFR 63, Subpart CCCC	Nutritional Yeast Manufacturing	N	A	None	
40 CFR 63, Subpart DDDD	Plywood and Composite Wood Products	N	A	None	
40 CFR 63, Subpart EEEE	Organic Liquid Distribution (non-gasoline)	N	J	None	Not Determined
40 CFR 63, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing NESHAP	N	A	None	
40 CFR 63, Subpart GGGG	Solvent Extraction for Vegetable Oil Production	N	A	None	
40 CFR 63, Subpart HHHH	Wet-Formed Fiberglass Mat Production	N	A	None	
40 CFR 63, Subpart IIII	Automobile/Light-Duty Truck (Surface Coating)	N	A	None	
40 CFR 63, Subpart JJJJ	National Emission Standards For Hazardous Air Pollutants: Paper And Other Web Coating	N	A	None	
40 CFR 63, Subpart KKKK	Metal Can (Surface Coating)	N	A	None	
40 CFR 63, Subpart LLLL	Reserved	N	J	None	Reserved
40 CFR 63, Subpart MMMM	Miscellaneous Metal Parts (Surface Coating)	N	A	None	
40 CFR 63, Subpart NNNN	Surface Coating of Large Appliances	N	A	None	
40 CFR 63, Subpart OOOO	Printing, Coating and Drying of Fabrics	N	A	None	
40 CFR 63, Subpart PPPP	Plastic Parts and Products	N	A	None	
40 CFR 63, Subpart QQQQ	Wood Building Products	N	A	None	
40 CFR 63, Subpart RRRR	Metal Furniture (Surface Coating)	N	A	None	
40 CFR 63, Subpart SSSS	Metal Coil Coating	N	A	None	
40 CFR 63, Subpart TTTT	Leather Finishing Operations	N	A	None	
40 CFR 63, Subpart UUUU	Cellulose Product Manufacturing	N	A	None	
40 CFR 63, Subpart VVVV	Boat Manufacturing	N	A	None	
40 CFR 63, Subpart WWWW	Reinforced Plastic Composites Production	N	A	None	
40 CFR 63, Subpart XXXX	Rubber Tire Manufacturing	N	A	None	
40 CFR 63, Subpart YYYY	Combustion Turbines	N	A	None	
40 CFR 63, Subpart ZZZZ	Reciprocating Internal Combustion Engines	N	A	None	
40 CFR 63, Subpart AAAAA	Lime Manufacturing	N	A	None	
40 CFR 63, Subpart BBBBB	Semiconductor Manufacturing	N	A	None	
40 CFR 63, Subpart CCCCC	Coke Ovens-Pushing, Quenching and Battery Stacks	N	A	None	
40 CFR 63, Subpart DDDDD	Industrial/Commercial/Institutional Boilers and Process Heaters	N	J	08	Vacated
40 CFR 63, Subpart EEEEE	Iron Foundries	N	A	None	

ATTACHMENT C

Applicable and Non-Applicable Federal and State Regulations

International Paper-Eastover Mill

TV-1900-0046

Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
40 CFR 63, Subpart FFFFF	Integrated Iron and Steel Manufacturing	N	A	None	
40 CFR 63, Subpart GGGGG	Site Remediation	N	A	None	
40 CFR 63, Subpart HHHHH	Miscellaneous Coating Manufacturing NESHAP	N	A	None	
40 CFR 63, Subpart JJJJJ	Brick and Structural Clay Products	N	A	None	
40 CFR 63, Subpart KKKKK	Clay Ceramics Manufacturing	N	A	None	
40 CFR 63, Subpart LLLLL	Asphalt Roofing and Processing	N	A	None	
40 CFR 63, Subpart MMMMM	Flexible Polyurethane Foam Fabrication Operation	N	A	None	
40 CFR 63, Subpart NNNNN	Hydrochloric Acid Production	N	A	None	
40 CFR 63, Subpart PPPPP	Engine Test Cells/Stands	N	A	None	
40 CFR 63, Subpart RRRRR	Taconite Iron Ore Processing	N	A	None	
40 CFR 63, Subpart SSSSS	Refractories Manufacturing	N	A	None	
40 CFR 63, Not Assigned	Chlorine Production	N	A	None	
40 CFR 63, Not Assigned	Primary Magnesium Refining	N	A	None	
40 CFR 64	Compliance Assurance Monitoring (CAM)	**Y**	I	02, 05, 06, 07	
40 CFR 65	Consolidated Federal Air Rule	N	A	None	
40 CFR 66	Assessment and Collection of Noncompliance Penalties by EPA	**Y**	N	Facility	No actions pending
40 CFR 67	EPA Approval of State Noncompliance Penalty Program	N	A	None	Requirements for states
40 CFR 68	Chemical Accident Prevention Provisions	**Y**	I	03	
40 CFR 69	Special Exemptions From Requirements Of The Clean Air Act	N	A	None	
40 CFR 70	Operating Permit State Programs	**Y**	J	Facility	Existing facility is currently a major source and possesses a Title V operating permit issued under SC regulations
40 CFR 71	Federal Operating Permit Programs	N	J	None	Operating permits issued under SC regulations
40 CFR 72	Permits Regulation	N	A	None	
40 CFR 73	Allowance System	N	A	None	
40 CFR 74	Sulfur Dioxide Opt-Ins	N	A	None	
40 CFR 75	Continuous Emissions Monitoring	**Y**	J	07	Required as part of NO_X Budget Requirements
40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	N	A	None	
40 CFR 77	Excess Emissions	N	A	None	
40 CFR 78	Appeal Procedures	N	A	None	
40 CFR 79	Registration Of Fuels And Fuel Additives	N	A	None	
40 CFR 80	Regulation Of Fuels And Fuel Additives	N	A	None	

ATTACHMENT C

Applicable and Non-Applicable Federal and State Regulations

International Paper-Eastover Mill
TV-1900-0046

Table C-1 Permit Shield					
Regulation/Citation	**Description**	**Applicable (Y/N)**	**Standard Reason Indicator**	**Emission Unit ID**	**Comments (Use when choosing Indicator "J")**
40 CFR 81	Designation Of Areas For Air Quality Planning Purposes	**Y**	J	None	
40 CFR 82A-G; H	Protection Of Stratospheric Ozone	N	A	None	
40 CFR 82 F	Protection of Stratospheric Ozone: Recycling and Emission Reduction	**Y**	I	Facility	
40 CFR 83	Reserved	N	J	None	Reserved
40 CFR 84	Reserved	N	J	None	Reserved
40 CFR 85	Control Of Air Pollution From Mobile Sources	N	A	None	
40 CFR 86	Control Of Emissions From New And In-Use Highway Vehicles And Engines	N	A	None	
40 CFR 87	Control Of Air Pollution From Aircraft And Aircraft Engines	N	A	None	
40 CFR 88	Clean-Fuel Vehicles	N	A	None	
40 CFR 89	Control Of Emissions From New And In-Use Nonroad Compression-Ignition Engines	N	A	None	
40 CFR 90	Control Of Emissions From Nonroad Spark-Ignition Engines At Or Below 19 Kilowatts	N	A	None	
40 CFR 91	Control Of Emissions From Marine Spark-Ignition Engines	N	A	None	
40 CFR 92	Control Of Air Pollution From Locomotives And Locomotive Engines	N	A	None	
40 CFR 93	Determining Conformity Of Federal Actions To State Or Federal Implementation Plans	N	J	None	Requirements for state agencies
40 CFR 94	Control Of Emissions From Marine Compression-Ignition Engines	N	A	None	
40 CFR 95	Mandatory Patent Licenses	N	A	None	
40 CFR 96	NO_X Budget Trading Program And CAIR NO_X And SO_2 Trading Programs For State Implementation Plans	N	J	None	Requirements for state agencies
40 CFR 97	Federal NO_X Budget Trading Program And CAIR NO_X And SO_2 Trading Programs	N	J	07	Requirements of 40 CFR 96 will become part of this regulation
40 CFR 98	Reserved	N	J	None	Reserved

TABLE C-2 STANDARD REASONS	
Indicator	**Standard Reason**
A	The facility is not in the applicable source category
B	The specified source/process is not present at the facility
C	The facility/unit was constructed or last modified prior to the effective date of the rule
D	Applies to all facilities
E	Rule/Standard proposed, but not final/effective
F	The facility/unit emits pollutants at a level less than established by the rule

ATTACHMENT C

Applicable and Non-Applicable Federal and State Regulations

International Paper-Eastover Mill

TV-1900-0046

TABLE C-2 STANDARD REASONS	
Indicator	**Standard Reason**
G	The facility/unit design capacity or production capacity is less than established by the rule.
H	The facility is not in a special control/non-attainment area.
I	Applicable to facility; requirements are listed in permit application and facility has certified compliance.
J	Other (explain)

ATTACHMENT D

ATTACHMENT A Department Letter
International Paper-Eastover Mill
TV-1900-0046
PAGE 1 OF 1

August 16, 2001

International Paper-Eastover Mill
PO Box B
Eastover SC 29044

ATTENTION: James P. Witkowski

RE: Comments on Attachment A and Associated Title V Permit Conditions, International Paper-Eastover Mill, 1900-0046

Dear Mr. Witkowski:

The Bureau is satisfied that the Attachment A permit condition wording is clear that the emission rates listed therein are not considered limitations.

The Bureau has stated its position in earlier documents that the emision rates listed in the Bureau permit Attachment A are not considered federally enforceable emission limitations, but a list of factors used in reviewing the facility's impact on ambient concentration limitations. Until the Department makes a determination that a facility is causing or contributing to an exceedance of Standards #2 or #8, there is no impact upon a facility's rights or anything that would limit its defenses.

Further, the wording under Table 4.1 in your draft permit addresses only those limits in the table (which are linked to conditions in Part 4.B.) Other table contents, such as those addressing asbestos, ozone depleting substances, attachment A, etc., are meant as place holders for the conditions (in which the requirements are explained) that are listed in Part 4.B.

If you have any questions please contact me at (803) 898-4105 or by E-mail at brownrj@columb31.dhec.state.sc.us.

Sincerely,

Robert J. Brown, Jr., Assistant Director,
Engineering Services Division
Bureau of Air Quality

cc Liz Basil, BAQ
Bob Hudson, Central Midlands EQC District Office

ATTACHMENT E

TRS and HAP Sources Routed to Power Boilers and/or NCG Incinerator for Incineration; Pulping Condensates (MACT) Routed for Control; and Bleaching System (MACT) Sources Routed for Control
International Paper-Eastover Mill
TV-1900-0046

Table E-1 Non-Condensible Gases (NCG) Collected and Treated

Unit ID	Equip. No.	Equipment System Collection Point	MACT S Regulated Category	Mill NCG Control System [1]	Other Regulations Requiring Control
02	311A	No. 1 Turpentine Condensing System (Flash Tanks and Steaming Vessel)	LVHC	Concentrated NCG	BB, PSD
02	340A	Turpentine Decanter	LVHC	Concentrated NCG	BB, PSD
02	340A	Turpentine Storage Tank	LVHC	Concentrated NCG	BB, PSD
02	340A	Turpentine Decanter Underflow Standpipe	LVHC	Concentrated NCG	BB, PSD
02	340A	Turpentine Decanter Weirbox	LVHC	Concentrated NCG	BB, PSD
02	340A	Turpentine Standpipe Bypass	LVHC	Concentrated NCG	BB, PSD
02	312A	No. 2 Turpentine Condensing System (Flash Tanks and Steaming Vessel)	LVHC	Concentrated NCG	BB, PSD
02	311A	No. 1 ChipBin/Blow Tank Conditioning System	LVHC	Dilute NCG	BB, PSD
02	312A	No. 2 ChipBin/Blow Tank Conditioning System	LVHC	Dilute NCG	BB, PSD
02	330A	No. 1 Stripper Reflux Flash Tank	LVHC	SOG	BB, PSD
02	330A	No. 1 Stripper Column Feed Tank	LVHC	Concentrated NCG	BB, PSD
02	331A	Incinerator Condensate Seal Pot	LVHC	Concentrated NCG	N/A
02	331A	NCG Condensate Tank	LVHC	Dilute NCG	N/A
02	331B	Rectifier Total Condenser	LVHC	Concentrated NCG	BB, PSD
02	331B	Rectified Methanol Tank	LVHC	Concentrated NCG	BB, PSD
02	331B	Methanol/Turpentine Decanter	LVHC	Concentrated NCG	BB, PSD
02	331B	Methanol/Turpentine Decanter Pump Tank	LVHC	Concentrated NCG	BB, PSD
02	331B	Methanol Degasser	LVHC	Concentrated NCG	BB, PSD
02	351A	No. 1 Evaporators Aftercondenser	LVHC	Concentrated NCG	BB, PSD
02	352A	No. 2 Stripper Trim Condenser	LVHC	SOG	BB, PSD
02	352A	No. 2 Stripper Column Feed Tank	LVHC	Concentrated NCG	BB, PSD
02	352B	No. 2 Evaporators Aftercondenser	LVHC	Concentrated NCG	BB, PSD
02	321A	No. 1 Rejects Refiner Feed Chest	HVLC	Dilute NCG	BB, PSD
02	321A	No. 1 Rejects Blend Chest	HVLC	Dilute NCG	BB, PSD
02	321A	No. 1 Foam Tank	HVLC	Dilute NCG	BB, PSD
02	321A	No. 1 Brownstock Washer	HVLC	Dilute NCG	BB, PSD
02	321A	No. 1-1 BSW Filtrate Tank	HVLC	Dilute NCG	BB, PSD
02	321A	No. 1 LowDensity BS Chest	HVLC	Dilute NCG	BB, PSD
02	401W	No. 1 -1 Twin Roll Press	HVLC	O_2 NCG	N/A
02	401W	No. 1-2 Twin Roll Press	HVLC	O_2 NCG	N/A
02	401M	No. 1 TRP Pressate Tank	HVLC	O_2 NCG	N/A
02	401V	No. 1 O_2 Blend Chest	HVLC	O_2 NCG	N/A
02	401J	No. 1 O_2 Blow Tank	HVLC	O_2 NCG	N/A
02	401N	No. 1-1 O_2 Washer	HVLC	O_2 NCG	N/A
02	401N	No. 1-2 O_2 Washer	HVLC	O_2 NCG	N/A
02	401E	No. 1-1 O_2 Washer Filtrate Tank	HVLC	O_2 NCG	N/A
02	401D	No. 1-2 O_2 Washer Filtrate Tank	HVLC	O_2 NCG	N/A
02	322A	No. 2 Rejects Refiner Feed Chest	HVLC	Dilute NCG	BB, PSD
02	322A	No. 2 Rejects Blend Chest	HVLC	Dilute NCG	BB, PSD
02	322A	No. 2-1 Brownstock Washer	HVLC	Dilute NCG	BB, PSD
02	322A	No. 2-1 BSW Filtrate Tank	HVLC	Dilute NCG	BB, PSD
02	322A	No. 2 BSW Interstage Chest	HVLC	Dilute NCG	BB, PSD

ATTACHMENT E

TRS and HAP Sources Routed to Power Boilers and/or NCG Incinerator for Incineration; Pulping Condensates (MACT) Routed for Control; and Bleaching System (MACT) Sources Routed for Control
International Paper-Eastover Mill
TV-1900-0046

Table E-1 Non-Condensible Gases (NCG) Collected and Treated					
Unit ID	**Equip. No.**	**Equipment System Collection Point**	**MACT S Regulated Category**	**Mill NCG Control System [1]**	**Other Regulations Requiring Control**
02	322A	No. 2-2 Brownstock Washer	HVLC	Dilute NCG	BB, PSD
02	322A	No. 2-2 BSW Pressate Tank	HVLC	Dilute NCG	BB, PSD
02	402C	No. 2 O_2 Blow Tank	HVLC	O_2 NCG	N/A
02	402H	No. 2-1 O_2 Press Washer	HVLC	O_2 NCG	N/A
02	402D	No. 2-1 O_2 Washer Pressate Tank	HVLC	O_2 NCG	N/A
02	402C	No. 2 O_2 Interstage Stock Chest	HVLC	O_2 NCG	N/A
02	402H	No. 2-2 O_2 Press Washer	HVLC	O_2 NCG	N/A
02	402E	No. 2-2 O_2 Washer Pressate Tank	HVLC	O_2 NCG	N/A
02	321A	No. 1 Knot Drainers	N/A [2]	Dilute NCG	PSD
02	321A	No. 1 Knot Bucket Elevator	N/A [2]	Dilute NCG	PSD
02	321A	No. 1 Refiner Metering Feeder	N/A [2]	Dilute NCG	PSD
02	321A	No. 1 Weak Black Liquor Tank	N/A [2]	Dilute NCG	PSD
02	322A	No. 2 Knot Drainers	N/A [2]	Dilute NCG	PSD
02	322A	No. 2 Knot Bucket Elevator	N/A [2]	Dilute NCG	PSD
02	322A	No. 2 Refiner Feed Leveling Conveyor	N/A [2]	Dilute NCG	PSD
02	322A	No. 3 Weak Black Liquor Tank	N/A	Dilute NCG	PSD
02	351A	No. 2 Weak Black Liquor tank	N/A	Dilute NCG	PSD
02	351A	No. 1 Swing Liquor Tank	N/A	Dilute NCG	PSD
02	351A	No. 2 Swing Liquor Tank	N/A	Dilute NCG	PSD
02	351A	Dump Tank	N/A	Dilute NCG	PSD
02	351A	Liquor Foam Tank	N/A	Dilute NCG	PSD
02	351A	65% Heavy Black Liquor Tank	N/A	Dilute NCG	N/A
02	352B	No. 4 Weak Black Liquor Tank	N/A	Dilute NCG	PSD
02	352B	No. 3 Swing Liquor Tank	N/A	Dilute NCG	PSD
02	352B	70% Heavy Black Liquor Tank	N/A	Dilute NCG	N/A
06	354A	Saltcake Recovery Tank	N/A	Dilute NCG	N/A
06	381A	No. 1 Recovery - Saltcake Mix Tank	N/A	Dilute NCG	N/A
06	381A	No. 1 Recovery - Precipitator Mix Tank	N/A	Dilute NCG	N/A
06	381A	No. 1 Recovery - Chemical Ash Tank	N/A	Dilute NCG	N/A
06	382A	No. 2 Recovery - Black Liquor Retention Tank	N/A	Dilute NCG	N/A
05	360G	No. 1 Lime Mud Pressure Filter (intermittent)	N/A	Dilute NCG	N/A
05	360E	No. 1 White Liquor Pressure Filter (intermittent)	N/A	Dilute NCG	N/A
05		No. 1 and 2 Acid Wash Tanks (intermittent)	N/A	Dilute NCG	N/A
05	361A	No. 2 Lime Mud Pressure Filter (intermittent)	N/A	Dilute NCG	N/A
05	361C	No. 2 White Liquor Pressure Filter (intermittent)	N/A	Dilute NCG	N/A

BB = NSPS 40 CFR 60, Subparts A and BB [total reduced sulfur (TRS) control]; PSD= SC Regulation 61-62.5, Standard 7 (PSD); MACT S = NESHAP 40 CFR 63, Subparts A and S; SOG = Stripper off-gases; LVHC = low volume high concentration; HVLC = high volume low concentration; N/A = not applicable

Note 1:

- Concentrated NCG System: Primary control device-NCG Incinerator; Backup control device-No. 2 Power Boiler
- Dilute NCG System: Primary Control Device-No. 1 Power Boiler; Backup control device-No. 2 Power Boiler
- Condensate Stripper offgas: Device-Methanol Rectification System; Backup control device-NCG Incinerator
- O_2 (oxygen delignification) NCG system: Primary control device-No. 2 Power Boiler

Note 2: Meets the HAP emission requirements of 40 CFR 63.443

ATTACHMENT E

TRS and HAP Sources Routed to Power Boilers and/or NCG Incinerator for Incineration;
Pulping Condensates (MACT) Routed for Control; and
Bleaching System (MACT) Sources Routed for Control
International Paper-Eastover Mill
TV-1900-0046

Table E-2 Pulping Condensate Collection and Treatment
Specific subset of the following HAP Pulping System Condensate Sources Collected and Routed to the Steam Strippers(330A and 352A)/Methanol Rectification System (331B) for HAP Reduction for Compliance with 40 CFR 63, Subpart S, per the Approved Alternative Method and Monitoring
No. 1 Evaporator segregated foul condensates from effects 2-5
No. 1 Evaporators foul condensates from vacuum system
No. 2 Evaporator segregated foul condensates from effects 2-6
No. 2 Evaporators foul condensates from vacuum system
Turpentine recovery system foul condensates
NCG Condensate tank (Dilute and Concentrated NCG System condensates from low point drains and mist eliminators, methanol rectifier bottoms)

Table E-3 Bleach Plant Collection and Treatment			
ID	**Equip.**	**Specific Collected 40 CFR 63, Subpart S (MACT S) Source**	**Control Device**
03	401U	No. 1 D_0 Tower	No. 1 Bleach Plant Scrubber
03	401U	No. 1 D_1 Tower	No. 1 Bleach Plant Scrubber
03	401U	No. 1 Bleach Plant Washers (D_0, E, D_1 washers)	No. 1 Bleach Plant Scrubber
03	401U	No. 1 Bleach Plant Seal Tanks (D_0, E, and D_1 seal tanks)	No. 1 Bleach Plant Scrubber
03	402A	No. 2 D0 Tower	No. 2 Bleach Plant Scrubber
03	402A	No. 2 D1 Tower	No. 2 Bleach Plant Scrubber
03	402A	No. 2 Bleach Plant Washers (D_0 and D_1 washers)	No. 2 Bleach Plant Scrubber
03	402A	No. 2 Bleach Plant Seal Tanks (D_0, E, and D_1 seal tanks)	No. 2 Bleach Plant Scrubber

ATTACHMENT F

40 CFR 63, Part 63 Record Keeping Requirements Summary
International Paper-Eastover Mill
TV-1900-0046

Table F-1 40 CFR 63, Part 63 Record Keeping Requirements Summary		
Record Keeping Requirement for applicable 40 CFR 63, Subpart S and MM (MACT S and MACT MM for Affected Sources	**Applicable MACT**	**Regulation**
Enclosure opening, closed-vent system, and closed collection system Records		
Site-specific inspection plan for the affected enclosure openings, closed vent systems, and closed collection systems	S	§63.454(b)
A drawing or schematic of the components of the affected enclosure openings, closed vent systems, and closed collection systems	S	§63.454(b)
The dates of system inspections	S	§63.454(b)(1)
The equipment type and identification for system	S	§63.454(b)(2)
Results of negative pressure tests for enclosures for system	S	§63.454(b)(3)
Results of leak detection tests for enclosure openings, closed vent systems, and closed collection systems	S	§63.454(b)(4)
The nature of the defect or leak and the method of detection (i.e., visual inspection or instrument detection) for system	S	§63.454(b)(5)
The date the defect or leak was detected and the date of each attempt to repair the defect or leak for system	S	§63.454(b)(6)
Repair methods applied in each attempt to repair the defect or leak for enclosure openings, closed vent systems, and closed collection systems	S	§63.454(b)(7)
The reason for the delay if the defect or leak is not repaired within 15 days after discovery for system	S	§63.454(b)(8)
The expected date of successful repair of the defect or leak if the repair is not completed within 15 days for system	S	§63.454(b)(9)
The date of successful repair of the defect or leak for system	S	§63.454(b)(10)
The position and duration of opening of bypass line valves and the condition of any valve seals for system	S	§63.454(b)(11)
The duration of the use of bypass valves on computer controlled valves for system	S	§63.454(b)(12)
A record of the presence or absence of gas stream flow in the bypass line at least once every 15 minutes is a flow device used for system	S	§63.454(e)
MACT MM General Record Keeping (SSM and General)		
Maintain a written SSM plan available to the Bureau on request	MM	§63.866(a) §63.6(e)(3)
Procedures to determine and records of the cause of an operating parameter exceedance and the time the exceedance began and ended	MM	63.866(a)(1)(i)
Recording the actions taken to correct an exceedance	MM	63.866(a)(1)(ii)
Records of any occurrence when corrective action is required under §63.864(k)(1), and when a violation is noted under §63.864(k)(2).	MM	63.866(b)
Records of black liquor solids firing rates in units of Mg/d or ton/d for all recovery furnaces	MM	63.866(c)(1)
Records of CaO production rates in units of Mg/d or ton/d for all lime kilns	MM	63.866(c)(2)
Records of parameter monitoring data required under §63.864, including any period when the operating parameter levels were inconsistent with the levels established during the initial performance test, with a brief explanation of the cause of the deviation, the time the deviation occurred, the time corrective action was initiated and completed, and the corrective action taken	MM	63.866(c)(3)
Records and documentation of supporting calculations for compliance determination	MM	63.866(c)(4)
Records of monitoring parameter ranges established for each affected source or process unit	MM	63.866(c)(5)
Startup, Shutdown and Malfunction (SSM) Plan Record Keeping		

ATTACHMENT F

40 CFR 63, Part 63 Record Keeping Requirements Summary
International Paper-Eastover Mill
TV-1900-0046

Table F-1 40 CFR 63, Part 63 Record Keeping Requirements Summary		
Record Keeping Requirement for applicable 40 CFR 63, Subpart S and MM (MACT S and MACT MM for Affected Sources	**Applicable MACT**	**Regulation**
The owner or operator must maintain at the affected source a current SSM plan and must make the plan available upon request for inspection and copying by the Bureau. In addition, the SSM Plan is subsequently revised as, the owner or operator must maintain at the affected source each previous (i.e., superseded) version of the SSM plan, and must make each such previous version available for inspection and copying by the Bureau for a period of 5 years after revision of the plan.	S, MM	§63.6(e)(3)(v)
Subpart A General Record Keeping (SSM/CMS/General)		
Records of the occurrence and duration of each SSM that causes the source to exceed any applicable emission limitation	S, MM	§63.10(b)(2)(i)
Records of the occurrence and duration of each malfunction of operation (*i.e.*, process equipment) or the required air pollution control and monitoring equipment	S, MM	§63.10(b)(2)(ii)
Records of all required maintenance performed on the air pollution control and monitoring equipment	S, MM	§63.10(b)(2)(iii)
Records of actions taken during periods of SSM when the source exceeded applicable emission limitations and when the actions taken are different from the procedures specified in the affected source's SSM malfunction plan	S, MM	§63.10(b)(2)(iv)(A)
Records of actions taken during periods of malfunction (including corrective actions to resto malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) when the actions taken are different from the procedures specifie in the affected source's SSM plan	S, MM	§63.10(b)(2)(iv)(B)
Records of all information necessary, including actions taken, to demonstrate conformance with the affected source's SSM plan when all actions taken during periods of startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), and malfunction (including corrective actions t restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) are consistent with the procedures specified in such pl	S, MM	§63.10(b)(2)(v) §63.6(e)(3)(iii)
Records of each period during which a CMS is malfunctioning or inoperative (including out-of-control periods)	S, MM	§63.10(b)(2)(vi)
Records of all required measurements needed to demonstrate compliance with a relevant standard (including, but not limited to, 15-minute averages of CMS data, raw performance testing measurements, and raw performance evaluation measurements, that support data that the source is required to report) [Case by case exceptions in 63.10(b)(vii)(A), 63.10(b)(B) , and (C)]	S, MM	§63.10(b)(2)(vii)
Records of all results of performance tests, CMS performance evaluations, and opacity and visible emission observations	S, MM	§63.10(b)(2)(viii)
Records of all measurements as may be necessary to determine the conditions of performance tests and performance evaluations	S, MM	§63.10(b)(2)(ix)
Records of all CMS calibration checks	S, MM	§63.10(b)(2)(x)
Records of all adjustments and maintenance performed on CMS	S, MM	§63.10(b)(2)(xi)
Records of all documentation supporting initial notifications and notifications of compliance status	S, MM	§63.10(b)(2)(xiv)
Subpart A Record Keeping for Sources with CMS		
Records of all required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods)	S, MM	§63.10(c)(1)
Records of the date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks	S, MM	§63.10(c)(5)
Records of the date and time identifying each period during which the CMS was out of contro	S, MM	§63.10(c)(6)
Records of the specific identification (i.e., the date and time of commencement and	S, MM	§63.10(c)(7)

ATTACHMENT F

40 CFR 63, Part 63 Record Keeping Requirements Summary
International Paper-Eastover Mill
TV-1900-0046

Table F-1 40 CFR 63, Part 63 Record Keeping Requirements Summary		
Record Keeping Requirement for applicable 40 CFR 63, Subpart S and MM (MACT S and MACT MM for Affected Sources	**Applicable MACT**	**Regulation**
completion) of each period of excess emissions and parameter monitoring exceedances, that occurs during startups, shutdowns, and malfunctions of the affected source.		
The specific identification (i.e., the date and time of commencement and completion) of eacl time period of excess emissions and parameter monitoring exceedances, that occurs during periods other than startups, shutdowns, and malfunctions of the affected source	S, MM	§63.10(c)(8)
The nature and cause of any malfunction (if known);	S, MM	§63.10(c)(10)
The corrective action taken or preventive measures adopted	S, MM	§63.10(c)(11)
The nature of the repairs or adjustments to the CMS that was inoperative or out of control	S, MM	§63.10(c)(12)
The total process operating time during the reporting period;	S, MM	§63.10(c)(13)
Records of all procedures that are part of a required quality control program developed and implemented for CMS	S, MM	§63.10(c)(14)

ATTACHMENT G
40 CFR Part 63 Reporting Requirements Summary
International Paper-Eastover Mill
TV-1900-0046

Table G-1 Summary of 40 CFR 63, Subpart A, S, MM, JJJJ, and DDDDD (MACT A, S MM, JJJJ and DDDDD Reporting				
Report	**Regulation**	**Applicable Affected MACT Sources**	**Report Recipient**	**Comment**
Notification Of Performance Test	§63.7(b); §63.9(e)	S, MM	Manager Source Evaluation Section EPA Region 4	❑ Report: Due 60 calendar days before the performance test is scheduled ❑ Report Content: Site specific test plan required in accordance with §63.7(c)(2) and shall include test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance program.
Results Of Performance Test	§63.7(g); §63.10(d)(2)	S, MM	Manager Source Evaluation Section EPA Region 4	❑ Report: Due 60th day following the completion of performance test ❑ Also submit as part of notification of compliance status report
Notification Of CMS Performance Evaluation	§63.8(e)(2); §63.8(e)(3); §63.9(g)	S, MM	Manager Source Evaluation Section EPA Region 4	❑ Notification: Submit simultaneously with the notification of the performance test date or 60 calendar days before the CMS performance test is scheduled ❑ Notification Content: Site specific test plan required in accordance with§63.7(3)(i) and shall include valuation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external quality assurance program.
Results Of CMS Performance Evaluations	§63.10(e)(2)(i)	S, MM,	Manager Source Evaluation Section EPA Region 4	Submit results simultaneously with results o performance tests and as required by Bureau
Notice of Compliance Status	§63.9(h)(1) through (h)(3); §63.9(j)	S, MM	Manager Air Toxics Section EPA Region 4	❑ Report: Due 60 th day following the completion of the relevant compliance demonstration and any other time required by changes or by the Bureau ❑ Report Content: Signed by a responsible official and the notification shall include applicable information in §63.9(h)(2)(i)
Periodic SSM reports	§63.6(e)(3)(iii) §63.10(d)(5)(i)	S, MM	Manager Air Toxics Section EPA Region 4 (letter only)	❑ Report: Due semiannually ❑ Report Content: Certified by a responsible official and the report shall include information in §63.10(d)(5)(i)
Immediate SSM reports	§63.6(e)(3)(iv) §63.10(d)(5)(ii)	S, MM	Manager Air Toxics Section EPA Region 4 (letter only)	❑ Report: Communication (facsimile or telephone) to Bureau at least 2 days after event and follow up written report within 7 days of the event ❑ Report Content: The report shall include information in §63.10(d)(5)(ii)
Excess Emissions And Continuous Monitoring System Performance	§63.453; 455; §63.867(c); §63.455(a)[Table 1];	S, MM	Manager Air Toxics Section	❑ Report: For MACT Subpart S, submit semiannually; for MACT Subpart MM, submit semiannually, unless excursions

Table G-1 Summary of 40 CFR 63, Subpart A, S, MM, JJJJ, and DDDDD (MACT A, S MM, JJJJ and DDDDD Reporting				
Report	**Regulation**	**Applicable Affected MACT Sources**	**Report Recipient**	**Comment**
Report	§63.8(c)(7) and (c)(8); §63.10(c); §63.10(e)(3)(ii)-(e)(3)(iv)		EPA Region 4 (letter only)	(under 63.876(C), in which case submit quarterly with excess emissions and/or violations); With no exceedances report no excess emission during reporting period; Reporting frequency may be reduced upon request to semiannually if approved by the Bureau in accordance with §63.10(e)(3)(ii)-(e)(3)(iv); Reports postmarked no later than 30 days after end of reporting period. As allowed by 63.16(a) for EPA Performance Track facilities, MACT Subpart MM reports may be submitted semiannually instead of quarterly. ❑ Subpart S and MM excess emission reports may be combined ❑ Report Content: Information specified in §63.10(c)(5)-(c)(13); §63.8(c)(7), and §63.8(c)(8) as well as number and duration of occurrences of excess emissions or violations for MM. Zero (low -level) and high-level calibration checks for COMSare not required to be included.
Summary Report-Gaseous and Opacity Excess Emission and Continuous Monitoring System Performance	§63.453; 455; §63.867(c); §63.455(a)[Table 1]; §63.10(e)(3)(e)(vi)-(e)(3)(viii	S,MM	Manager Air Toxics Section EPA Region 4 (letter only)	❑ Report: If total duration of excess emissions or process or process control parameter exceedances for reporting period is less than 1 % of the total operating time for the reporting time, and the CMS downtime for the operating period is l ess than 5%, only a summary report shall be submitted; otherwise, a full Excess Emissions and Continuous Monitoring System Performance Report (above) shall be submitted. Reporting frequency for Summary Report is same as for specified for the Excess Emiss ions and Continuous Monitoring System Performance Report (above). ❑ Report Content: Information specified in §63.10(e)(3)(vi)
Request for operating range approvals		All	Director Engineering Services	❑ As required

ATTACHMENT H

Pollution Control Equipment-Parameter Ranges
International Paper-Eastover Mill
TV-1900-0046

Table H-1 Pollution Control Equipment Parameter Ranges

Unit ID	Equip. No.	Control Device No.	Pollutant	Applicable Requirement	Ranges		Range Basis
02	331A	331A	HAP	40 CFR 63, Subpart S	**MACT S Operating ranges:** (NCG Incinerator) **Excess Emissions** (potential excess emissions if outside the following range(s) under conditions defined by regulation):		☐ Test data ☐ Approved alternative monitoring ☐ MACT requirements
					☐ NCG Incinerator combustion temperature:	**≥ 1435°F**	
					☐ Venting of affected sources:	**= 0**	
02	331A	331A	TRS	40 CFR 60, Subpart BB SC Reg. 61-62.5, Std. 7	**CAM Indicator Range(s):** (NCG Incinerator) {MACT S Presumptive for CAM} **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Alternative monitoring ☐ NSPS requirements
					☐ NCG Incinerator combustion temperature:	**≥ 1450°F**	
					☐ Venting of affected sources: = 0	**= 0**	
02	331A	331A	Opacity	SC Reg. 61-62.5, Std. 4	**Title V Parameter Range(s):** (NCG Incinerator) **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Operational History
					☐ Scrubbing liquid recirculation flow:	**≥ 350 gpm**	
02	331A	331A	SO_2	SC Reg. 61-62.5, Std. 7	**CAM Indicator Range(s):** (NCG Incinerator Scrubber) **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Emission record keeping
					Scrubber caustic makeup flow:	**≥ 5 gpm**	
					Annualized SO_2 monthly average:	**≥ 1971 tpy**	
03	401U	401U	HAP(Cl_2)	40 CFR 63, Subpart S	**MACT S Operating Range(s):** (No. 1 Bleach Plant Scrubber) **Excess Emissions** (potential excess emissions if outside the following range(s) under conditions defined by regulation):		☐ Test data
					☐ Scrubber liquid recirculation flow:	**≥ 750 gpm**	
					☐ Scrubber pH (influent):	**≥ 10 pH**	
					☐ Scrubber caustic makeup flow:	**≥ 0.9 gpm**	
					☐ Fan status:	**= On**	
03	401U	401U	Opacity	SC Reg. 61-62.5, Std. 4	**Title V Parameter Range(s):** (No. 1 Bleach Plant Scrubber) {MACT S Streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Test data
					☐ Scrubber liquid recirculation flow:	**≥ 750 gpm**	
					☐ Scrubber pH (influent):	**≥ 10 pH**	
					☐ Scrubber caustic makeup flow:	**≥ 0.9 gpm**	
					☐ Fan status:	**= On**	
03	402A	402A	HAP Cl_2	40 CFR 63, Subpart S	**MACT S Operating Range(s):**		☐ Test data

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Pollution Control Equipment-Parameter Ranges
International Paper-Eastover Mill
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Table H-1 Pollution Control Equipment Parameter Ranges							
Unit ID	**Equip. No.**	**Control Device No.**	**Pollutant**	**Applicable Requirement**	**Ranges**		**Range Basis**
					Excess Emissions (potential excess emissions if outside the following range(s) under conditions defined by regulation):		
					☐ Scrubber liquid recirculation flow:	**≥ 350**	
					☐ Scrubber pH (effluent):	**≥ 10 pH**	
					☐ Fan status:	**= On**	
03	402A	402A	Opacity	SC Reg. 61-62.5, Std. 4	**Title V Parameter Range(s):** (No. 2 Bleach Plant Scrubber) {MACT S streamlining for TV} Parameter Range(s) (parameter exceedance if outside the following parameter range(s)):		☐ Test data
					☐ Scrubber liquid recirculation flow:	**≥ 350 gpm**	
					☐ Scrubber pH (effluent):	**≥ 10 pH**	
					☐ Fan status:	**= On**	
03	412A	412A	Opacity	SC Reg. 61-62.5, Std. 4	**Title V Parameter Range(s):** (ClO_2 Generator Scrubber) **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Vendor Information
					☐ Scrubber liquid flow:	**≥ 125 gpm**	
					☐ Scrubbing liquid feed temperature:	**≤ 50 ^{O}F**	
03	413A	413A	Opacity	SC Reg. 61-62.5, Std. 4	**Title V Parameter Range(s):** (ClO_2 Generator Scrubber) **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Vendor Information
					☐ Scrubber liquid flow:	**≥ 175 gpm**	
					☐ Scrubbing liquid feed temperature:	**≤ 50 ^{O}F**	
04	460A	460A	Opacity PM	SC Reg. 61-62.5, Std. 4 SC Reg. 61-62.5, Std. 7	**Title V Parameter Range(s):** (No. 1 Starch Unloading System Baghouse) **Parameter Range(s)**(parameter exceedance if outside the following parameter range(s)):		☐ Vendor information
					☐ Baghouse pressure drop:	**0.1 in- 6 in water**	
04	460B	460B	Opacity PM	SC Reg. 61-62.5, Std. 4 SC Reg. 61-62.5, Std. 7	**Title V Parameter Range(s):** (No. 2 Starch Unloading Sustem Baghouse) Parameter Range(s) (parameter exceedance if outside the following parameter range(s)):		☐ Vendor information
					☐ Baghouse pressure drop:	**0.1 in- 6 in water**	
05	371C	371C	PM	SC Reg. 61-62.5, Std. 4 SC Reg. 61-62.5, Std. 7	**CAM Indicator Range(s)**: (Fresh Lime Pneumatic Lime Unloading Baghouse) **Excursion range** (corrective action required if outside following range(s) under conditions defined by CAM condition):		☐ Vendor information
					☐ Baghouse pressure drop:	**0.1 in- 6 in water**	
05	371A	371A	HAP Metals (PM)	40 CFR 63, Subpart MM	**MACT MM Operating Range(s):** (No. 1 Lime Kiln Scrubber) **Exceedance** (corrective action required if outside the following range(s) under conditions defined by):		☐ Test data ☐ Established based on MACT MM requirements

ATTACHMENT H

Pollution Control Equipment-Parameter Ranges
International Paper-Eastover Mill
TV-1900-0046

Table H-1 Pollution Control Equipment Parameter Ranges							
Unit ID	**Equip. No.**	**Control Device No.**	**Pollutant**	**Applicable Requirement**	**Ranges**		**Range Basis**
					☐ Scrubber supply pressure:	**≥ 300 psig**	
					☐ Scrubber liquid flow:	**≥ 270 gpm**	
					Exceedance (violation if outside the following range(s) under conditions defined by regulation and Condition MACT.5):		
					☐ Scrubber supply pressure:	**≥ 300 psig**	
					☐ Scrubber liquid flow:	**≥ 270 gpm**	
05	371A	371A	PM	SC Reg. 61-62.5, Std. 4 SC Reg. 61-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 1 Lime Kiln Scrubber) {MACT MM Presumptive for CAM} **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Established based on MACT MM requirements
					Scrubber supply pressure:	**≥ 300 psig**	
					Scrubber liquid flow:	**≥ 270 gpm**	
05	371A	371A	Opacity	SC Reg. 61-62.5, Std. 4	**Title V Parameter Range:** (No. 1 Lime Kiln Scrubber) {MACT S streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Established based on MACT MM requirements
					☐ Scrubber supply pressure:	**≥ 300 psig**	
					☐ Scrubber liquid flow:	**≥ 270 gpm**	
05	372A	372A	PM	SC Reg. 61-62.5, Std. 4 SC Reg. 61-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 2 Lime Kiln ESP) {MACT S Presumptive for CAM} **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Established based on MACT MM requirements
					☐ Opacity:	**≤ 20 %**	
06	381A	381A	PM	SC Reg. 61-62.5, Std. 4 SC Reg. 61-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 1 Recovery Furnace ESP) {MACT S Presumptive for CAM} **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Established based on MACT MM requirements
					☐ Opacity:	**≤ 20 %**	
06	381C	381C	HAP Metals (PM)	40 CFR 63, Subpart MM	**MACT Operating Range(s):** (No. 1 Smelt Dissolving Tank Scrubber) **Exceedance** (corrective action required if outside the following range(s) under conditions defined by regulation):		☐ Test data ☐ Established based on MACT MM requirements
					☐ Scrubbing liquid flow:	**≥ 250 gpm**	
					☐ Scrubber fan status:	**= On**	
					Exceedance (violation if outside the following range(s) under conditions defined by regulation and Condition MACT.5):		

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Pollution Control Equipment-Parameter Ranges
International Paper-Eastover Mill
TV-1900-0046

Table H-1 Pollution Control Equipment Parameter Ranges							
Unit ID	**Equip. No.**	**Control Device No.**	**Pollutant**	**Applicable Requirement**	**Ranges**		**Range Basis**
					☐ Scrubbing liquid flow:	**≥ 250 gpm**	
					☐ Scrubber fan status:	**= On**	
06	381C	381C	PM	SC Reg. 61-62.5, Std. 4 SC Reg. 61-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 1 Smelt Dissolving Tank Scrubber) {MACT MM Presumptive for CAM} **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Established based on MACT MM range(s)
					☐ Scrubbing liquid flow:	**≥ 250 gpm**	
					☐ Scrubber fan status:	**= On**	
06	381C	381C	Opacity	SC Reg. 61-62.5, Std. 4	**Title V operating range(s):** (No. 1 Smelt Dissolving Tank Scrubber){MACT MM streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Test data ☐ Established based on MACT MM range(s)
					☐ Scrubbing liquid flow: ≥ 250 gpm	**≥ 250 gpm**	
					☐ Scrubber Fan status: = On	**= On**	
06	381C	381C	SO_2	SC Reg. 61-62.5, Std. 7	**Title V operating range(s):** (No. 1 Smelt Dissolving Tank Scrubber) {MACT MM streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Test data
					☐ Scrubbing liquid flow: ≥ 250 gpm	**≥ 250 gpm**	
					☐ Scrubber Fan status: = On	**= On**	
06	381C	381C	TRS	SC Reg. 61-62.5, Std. 7 40 CFR 60, Subpart BB	**Title V Operating Range(s):** (No. 1 Smelt Dissolving Tank Scrubber) {MACT S streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s):		☐ Test data
					☐ Scrubbing liquid flow: ≥ 250 gpm	**≥ 250 gpm**	
					☐ Scrubber Fan status: = On	**= On**	
06	382A	382A	PM	SC Reg. 61-62.5. Std. 4 SC Reg. 61-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 2 Recovery Furnace ESP) {MACT S Presumptive for CAM} **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Established based on MACT MM requirements
					Opacity:	**≤ 20 %**	
06	382B	382B	HAP Metals (PM)	40 CFR 63, Subpart MM	**MACT Operating Range(s):** (No. 2 Smelt Dissolving Tank Scrubber) **Exceedance Range(s):** (corrective action required if outside the following range(s) under conditions defined by regulation) :		☐ Test data Established based on MACT MM requirements
					☐ Scrubbing liquid flow:	≥ 240 gpm	
					☐ Scrubber fan status:	= On	

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Pollution Control Equipment-Parameter Ranges
International Paper-Eastover Mill
TV-1900-0046

Table H-1 Pollution Control Equipment Parameter Ranges							
Unit ID	**Equip. No.**	**Control Device No.**	**Pollutant**	**Applicable Requirement**	**Ranges**		**Range Basis**
					Exceedance Range(s): (violation if outside the following range(s) under conditions defined by regulation and Condition MACT.5):		
					☐ Scrubbing liquid flow:	≥ 240 gpm	
					☐ Scrubber fan status:	= On	
06	382B	382B	PM	SC Reg. 61-62.5. Std. 4 SC Reg. 61-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 2 Smelt Dissolving Tank Scrubber) {MACT S Presumptive for CAM} **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Test data ☐ Established based on MACT MM range(s)
					☐ Scrubbing liquid flow:	**≥ 240 gpm**	
					☐ Scrubber Fan status:	**= On**	
06	382B	382B	Opacity	SC Reg. 61-62.5. Std. 4	**Title V operating ranges:** {MACT S streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Test data
					☐ Scrubbing liquid flow:	**≥ 240 gpm**	
					☐ Scrubber Fan status:	**= On**	
06	382B	382B	SO_2	SC Reg. 61-62.5. Std. 7	**Title V operating ranges:** {MACT S streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Test data
					☐ Scrubbing liquid flow:	**≥ 240 gpm**	
					☐ Scrubber Fan status:	**= On**	
06	382B	382B	TRS	SC Reg. 61-62.5. Std. 7 40 CFR 60, Subpart BB	**Title V operating ranges:** {MACT S streamlining for TV} **Parameter Range(s)** (parameter exceedance if outside the following parameter range(s)):		☐ Test data
					☐ Scrubbing liquid flow:	**≥ 240 gpm**	
					☐ Scrubber Fan status:	**= On**	
07	501A	501A	PM	SC Reg. 61-62.5, Std. 1 SC Reg. 60-62.5, Std. 7 40 CFR 60, Subpart D	**CAM Indicator Range(s)**: (No. 1 Power Boiler ESP) **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Based on NSPS requirements
					Opacity	**≤ 20 %**	
07	501A	501A	TRS	SC Reg. 60-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 1 Power Boiler) **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		☐ Based on NSPS requirements
					☐ Venting:	**= 0**	

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Pollution Control Equipment-Parameter Ranges
International Paper-Eastover Mill
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Table H-1 Pollution Control Equipment Parameter Ranges

Unit ID	Equip. No.	Control Device No.	Pollutant	Applicable Requirement	Ranges		Range Basis
07	502A	502A	PM	SC Reg. 61-62.5, Std. 1 SC Reg. 60-62.5, Std. 7 40 CFR 60, Subpart D	**CAM Indicator Range(s)**: (No. 2 Power Boiler ESP) **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		Based on NSPS requirements
					Opacity	**≤ 20 %**	
07	502A	502A	TRS	SC Reg. 60-62.5, Std. 7 40 CFR 60, Subpart BB	**CAM Indicator Range(s)**: (No. 1 Power Boiler) **Excursion range** (corrective action required if outside the following range(s) under conditions defined by CAM condition):		Based on NSPS requirements
					Venting:	**= 0**	

TRS = Total reduced sulfur
PM = Particulate Matter
SO_2 = Sulfur Dioxide
NSPS = New Source Performance Standard
SC Reg. = South Carolina Regulation
≥ = greater than or equal to; ≤ = less than or equal to
MACT S = 40 CFR 63, Subparts A and S
MACT MM = 40 CFR 63, Subparts A and MM

ATTACHMENT I

Abbreviations and Symbols
International Paper-Eastover Mill
TV-1900-0046

Table K-1 Abbreviations and Symbols	
Abbreviation	**Description**
AA	Administrative amendment
ADT	Air dried ton (assumes 10 % moisture)
ADTBP	Air dried tons of bleached pulp (Assumes 10 % moisture)
ADTFP	Air dried tons of finished paper or pulp (Assumes 10 % moisture)
ADTUBP	Air dried tons of unbleached pulp (Assumes 10 % moisture)
BACT	Best available control technology
BLS	Black liquor solids
Btu	British thermal units
CAM	Compliance assurance monitoring
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Register
CMS	Continuous monitoring system
CO	Carbon monoxide
COMS	Continuous opacity monitoring system
CPMS	Continuous parametric monitoring system
EPA	Environmental Protection Agency
ERC	Emission reduction credit
ESP	Electrostatic precipitator
gr/dscf@10%O_2	Grains per dry standard cubic foot corrected to 10 percent oxygen
gr/dscf@8%O_2	Grains per dry standard cubic foot corrected to 8 percent oxygen
H_2S	Hydrogen sulfide
H_2SO_4	Sulfuric acid
HAP	Hazardous air pollutants
hr	Hour
HVLC	High volume low concentration
LAER	Lowest Achievable Emission Rate
lb	pound
lb/ETADUBP	Pounds per equivalent ton of air dried unbleached pulp (Assumes 10 % moisture)
lb/hr	Pound/hour
lb/T BLSF	Pounds per ton of black liquor solids fired
lb/106 Btu	Pounds per million British thermal units
LVHC	Low volume high concentration
MACT	Maximum achievable control technology
MACT DDDDD	40 CFR 63, Subparts A-General Provisions and DDDDD-National Emission Standards For Hazardous Air Pollutants For Industrial, Commercial, And Institutional Boilers And Process Heaters
MACT JJJJ	40 CFR 63, Subparts A-General Provisions and JJJJ-National Emission Standards For Hazardous Air Pollutants: Paper And Other Web Coating
MACT MM	40 CFR 63, Subparts A-General Provisions and MM-National Emission Standards For Hazardous Air Pollutants For Chemical Recovery Combustion Sources At Kraft, Soda, Sulfite, And Stand-Alone Semichemical Pulp Mills
MACT RR	40 CFR 63, Subparts A-General Provisons and RR-National Emission Standards For Individual Drain Systems
MACT S	40 CFR 63, Subparts A-General Proviaions and S-National Emission Standards For Hazardous Air Pollutants From The Pulp And Paper Industry
MM	Minor modification
N/A	Not applicable
NESHAP	National emission standards for hazardous air pollutants
NO_X	Nitrogen oxides
NSPS	New source performance standards
NSPS BB	40 CFR 60, Subparts A-General Provisions and BB-Standards Of Performance For Kraft Pulp Mills
NSR	Non-attainment new source review
O_2	Oxygen
ODTP	Oven dried tons of pulp
Pb	Lead
PM	Particulate matter
PM_{10}	Particulate matter less than 10 microns
ppmv	Parts per million
ppmv	Parts per million volume
ppmv@10%O_2	Parts per million volume corrected to 10 percent oxygen
ppmv@8%O_2	Parts per million volume corrected to 8 percent oxygen
PSD	Prevention of significant deterioration
Sec.	Section
SC	South Carolina

ATTACHMENT I

Abbreviations and Symbols
International Paper-Eastover Mill
TV-1900-0046

Table K-1 Abbreviations and Symbols	
Abbreviation	**Description**
SC Reg. 61-62.5, Std.	South Carolina Regulation 61-62.5, Standard
SC Std.	South Carolina Standard
SM	Signification modification
SO_2	Sulfur dioxide
SSM	Startup, shutdown, malfunction
TDF	Tire-derived fuel
T	Tons
T BLS/day	Tons of black liquor solids per day
T CaO/day	Tons of calcium oxide per day
TMP	Thermo mechanical pulping
tph	Tons per hour
tpy	Tons per year
TRS	Total reduced sulfur
US EPA	United States Environmental Protection Agency
VE	Visual emission inspections
VOC	Volatile organic compounds

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John O. Hutto, Sr., MD

September 14, 2012

Mr. John Baker
Environmental Manager
International Paper – Eastover Mill
4001 McCords Ferry Road
Eastover, SC 29044

Re: Revision to Air Quality Title V Operating Permit No. TV-1900-0046

Dear Mr. Baker:

Enclosed is a revision to Air Quality Title V Operating Permit No. TV-1900-0046 that was previously issued on October 16, 2008. Please note the conditions and limitations imposed. This revision reflects changes made to incorporate an Administrative Amendment requested on January 19, 2012 into your existing Title V Operating Permit as indicated on Page 2. This revised Title V Operating Permit will remain valid through December 31, 2013, unless otherwise provided for by S.C. Regulation 61-62.70.7(c)(1)(ii).

Please be advised that this facility's periodic reporting period is unaffected by this revision. This Title V Operating Permit may include several periodic reporting requirements with varying submittal frequencies and due dates. Reports required under the terms and conditions of this permit must be completed and submitted in a timely manner in accordance with the periodic reporting schedule found in Part 8 of this permit.

It is important for you and/or an authorized representative responsible for the overall operation of this facility to read this issued permit carefully and to understand all requirements. If any errors or omissions are discovered, please notify Stephanie L. White of my staff, via e-mail at whitesl@dhec.sc.gov, or call 843-953-0163.

Pursuant to the South Carolina Administrative Procedures Act, any Department decision involving the issuance, denial, suspension, or revocation of a permit or certification may be appealed by the applicant, permittee, licensee, or affected person. Please see the enclosed "Notice of Appeal Procedure" for guidelines on filing an appeal.

Sincerely,

Elizabeth J. Basil
Director, Engineering Services Division
Bureau of Air Quality

EJB:slw:el

Enclosure

cc: Title V File: 1900-0046
ec: Ben Buchanan, Region 3 EQC Office
James Purvis, EPA Region 4
Michael Shroup, Source Evaluation Manager

ED_001261A_00001563

Notice of Appeal Procedure
Pursuant to S.C. Code Section 44-1-60

1. This decision of the S.C. Department of Health and Environmental Control (Department) becomes the final agency decision 15 calendar days after notice of the decision has been mailed or otherwise sent to the applicant, permittee, licensee and affected persons who have requested in writing to be notified, unless a written request for final review accompanied by a filing fee in the amount of $100 is filed with the Department by the applicant, permittee, licensee, or affected person.

2. An applicant, permittee, licensee, or affected person who wishes to appeal this decision must file a timely written request for final review with the Clerk of the Board at the following address or by facsimile at 803-898-3393. A filing fee in the amount of $100 made payable to SC DHEC must also be received by the Clerk within the time allowed for filing a request for final review. However, if a request for final review is filed by facsimile, the filing fee may be mailed to the Clerk of the Board if the envelope is postmarked within the time allowed for filing a request for final review.

   Clerk of the Board
   SC DHEC
   2600 Bull Street
   Columbia, SC 29201

3. In order to be timely, a request for final review must be received by the Clerk of the Board within 15 calendar days after notice of the decision has been mailed or otherwise sent to persons entitled to receive notice. If the 15th day occurs on a weekend or State holiday, the request is due to be received by the Clerk of the Board on the next working day. The request for final review must be received by the Clerk of the Board by 5:00 p.m. on the date it is due. A request for final review will be returned to the requestor if the filing fee is not received on time as described above.

4. The request for final review should include the following:
   a. the grounds on which the Department's decision is challenged and the specific changes sought in the decision
   b. a statement of any significant issues or factors the Board should consider in deciding whether to conduct a final review conference
   c. a copy of the Department's decision for which review is requested

5. If a timely request for final review is filed with the Clerk of the Board, the Clerk will provide additional information regarding procedures. If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within 30 calendar days after notice is mailed that the Board declined to hold a final review conference.

The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

January 7, 2011

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health
and Environmental Control

Office of Environmental Quality Control
Bureau of Air Quality
State Construction Permit

International Paper Eastover Mill
4001 McCords Ferry Road
Eastover, South Carolina 29044
Richland County

Pursuant to the provisions of the *Pollution Control Act*, Sections 48-1-50(5) and 48-1-110(a), the 1976 *Code of Laws of South Carolina* , as amended, and *South Carolina Regulation 61 -62*, *Air Pollution Control Regulations and Standards* , the Bureau of Air Quality authorizes the construction of this facility and the equipment specified herein in accordance with the plans, specifications, and other information submitted in the construction permit application received on August 19, 2014 , as amended. All official correspondence, plans, permit applications, and written statements are an integral part of the permit. Any false information or misrepresentation in the application for a construction permit may be grounds for permit revocation.

The construction and subsequent operation of this facility is subject to and conditioned upon the terms, limitations, standards, and schedules contained herein or as specified by this permit and its accompanying attachments.

Permit Number: **1900-0046-DN**
Issue Date: **September 30, 2016**

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Director, Engineering Services Division
Bureau of Air Quality

A. PROJECT DESCRIPTION

Permission is hereby granted to make modifications to the No. 1 Power Boiler (ID 501A at Emission Unit 07) and the No. 2 Power Boiler (ID 502A at Emission Unit 07) to meet compliance requirements for the Boiler MACT regulation, Subpart DDDDD - National Emission Standards For Hazardous Air Pollutants For Major Sources: Industrial, Commercial, And Institutional Boilers And Process Heaters.

The modifications to the No. 1 Power Boiler include replacing the use of coal and fuel oil with natural gas as the only permitted fuel. The coal system (Emission Unit 07, ID 530A) will be removed from service as a result of this construction project, since it will no longer be used to transfer coal to the No. 1 Power Boiler.

The modifications to the No. 2 Power Boiler include replacing the fuel oil burners with dual fuel natural gas/No.2 fuel oil burners. The boiler will primarily combust wood waste and tire-derived fuel, or TDF. During startup of the boiler, natural gas will be used, with propane as a back-up fuel. Natural gas will also be used as fuel when wood waste and TDF are not available. No. 5 fuel oil and No. 6 fuel oil will be replaced with natural gas and No. 2 fuel oil. The facility may burn either natural gas or No. 2 fuel oil to assist with the combustion of non-condensable gases (NCG).

B.1 EQUIPMENT

Equipment ID	Equipment Description	Control Device ID	Emission Point ID
501A	545 Million BTU/hr No.1 Power Boiler	501A	501ASCE
502A	500 Million BTU/hr No.2 Power Boiler	502A	502ASCE

B.2 CONTROL DEVICES

Control Device ID	Control Device Description	Pollutant(s) Controlled
501A	No.1 Power Boiler Mechanical Dust Collector	$PM/PM_{10}/PM_{2.5}$
502A	No.2 Power Boiler Mechanical Dust Collector	$PM/PM_{10}/PM_{2.5}$
501A	No.1 Power Boiler ESP	$PM/PM_{10}/PM_{2.5}$
502A	No.2 Power Boiler ESP	$PM/PM_{10}/PM_{2.5}$

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

Condition Number	Conditions
C.1	**Equipment/Control Device ID:** All (S.C. Regulation 61-62.1, Section II.J.1.g) A copy of the Department issued construction and/or operating permit must be kept readily available at the facility at all times. The owner or operator shall maintain such operational records; make reports; install, use, and maintain monitoring equipment or methods; sample and analyze emissions or discharges in accordance with prescribed methods at locations, intervals, and procedures as the Department shall prescribe; and provide such other information as the Department reasonably may require. All records required to demonstrate compliance with the limits established under this permit shall be maintained on site for a period of at least 5 years from the date the record was generated and shall be made available to a Department representative upon request.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

Condition Number	Conditions
C.2	**Equipment/Control Device ID:** 501A, 502A The owner/operator shall inspect, calibrate, adjust, and maintain continuous monitoring systems, monitoring devices, and gauges in accordance with manufacturer's specifications or good engineering practices. The owner/operator shall maintain on file all measurements including continuous monitoring system or monitoring device performance measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required in a permanent form suitable for inspection by Department personnel.
C.3	**Equipment/Control Device ID:** 501A, 502A All gauges shall be readily accessible and easily read by operating personnel and Department personnel (i.e. on ground level or easily accessible roof level). Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site. Exceedance of operational range shall not be considered a violation of an emission limit of this permit, unless the exceedance is also accompanied by other information demonstrating that a violation of an emission limit has taken place. Reports of these incidences shall be submitted semiannually. If no incidences occurred during the reporting period then a letter shall indicate such. Any alternative method for monitoring control device performance must be preapproved by the Department and shall be incorporated into the permit as set forth in S.C. Regulation 61-62.70.7.
C.4	**Equipment/Control Device ID:** 501A, 502A For any source test required under an applicable standard or permit condition, the owner, operator, or representative shall comply with S.C. Regulation 61-62.1, Section IV - Source Tests. Unless approved otherwise by the Department, the owner, operator, or representative shall ensure that source tests are conducted while the source is operating at the maximum expected production rate or other production rate or operating parameter which would result in the highest emissions for the pollutants being tested. Some sources may have to spike fuels or raw materials to avoid being subjected to a more restrictive feed or process rate. Any source test performed at a production rate less than the rated capacity may result in permit limits on emission rates, including limits on production if necessary. The owner or operator shall comply with any limits that result from conducting a source test at less than rated capacity. A copy of the most recent Department issued source test summary letter, whether it imposes a limit or not, shall be maintained with the operating permit, for each source that is required to conduct a source test. Site-specific test plans and amendments, notifications, and source test reports shall be submitted to the Manager of the Source Evaluation Section, Bureau of Air Quality.
C.5	**Equipment/Control Device ID:** All The owner or operator shall continue to operate under all applicable requirements, including emission limits and standards, testing, monitoring, record keeping, and reporting of the existing Title V Operating Permit (TV-1900-0046) that are not changed or contravened by this construction permit.
C.6	**Equipment/Control Device ID:** 501A (S.C. Regulation 61-62.5, Standard No. 1, Section I) The fuel burning source shall not discharge into the ambient air smoke which exceeds opacity of 20%. The opacity standards set forth above do not apply during startup or shutdown. The owner/operator shall, to the extent practicable, maintain and operate any source including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

Condition Number	Conditions
C.7	**Equipment/Control Device ID:** 501A This source is permitted to burn only natural gas as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Department.
C.8	**Equipment/Control Device ID:** 502A (S.C. Regulation 61-62.5, Standard No. 1, Section I) The fuel burning source shall not discharge into the ambient air smoke which exceeds opacity of 20%. The opacity limit may be exceeded for sootblowing, but may not be exceeded for more than 6 minutes in a one hour period nor be exceeded for more than a total of 24 minutes in a 24 hour period. Emissions caused by sootblowing shall not exceed an opacity of 60%. The opacity standards set forth above do not apply during startup or shutdown. Owners and operators shall, to the extent practicable, maintain and operate any source including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. In addition, the owner or operator shall maintain a log of the time, magnitude, duration, and any other pertinent information to determine periods of startup and shutdown and make available to the Department upon request.
C.9	**Equipment/Control Device ID:** 502A This source is permitted to burn only tire-derived fuel (TDF), wood waste /bark, natural gas, propane, and No. 2 fuel oil as fuel. The use of any other substances as fuel is prohibited without prior written approval from the Department.
C.10	**Equipment/Control Device ID:** 501A, 502A (S.C. Regulation 61 -62.5, Standard No. 1, Section II) The maximum allowable discharge of particulate matter resulting from these sources is 0.6 pounds per million BTU input.
C.11	**Equipment/Control Device ID:** 501A, 502A (S.C. Regulation 61 -62.5, Standard No. 1, Section III) The maximum allowable discharge of sulfur dioxide (SO_2) resulting from fuel burning operations is 2.3 pounds per million BTU input.
C.12	**Equipment/Control Device ID:** 501A This source is subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Provisions and Subpart D - Standards Of Performance For Fossil -Fuel-Fired Steam Generators , and S.C. Regulation 61 -62.60 Subparts A and D - Standards Of Performance For Fossil -Fuel-Fired Steam Generators, as applicable. These sources shall comply with all applicable requirements of Subparts A and D.
C.13	**Equipment/Control Device ID:** 501A 40 CFR §60.44 Standard for Nitrogen Oxides (NO_X). (a) Except as provided under paragraph (e) of this section, on and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases that contain NO_X, expressed as NO_2 in excess of: (a)(1) 86 ng/J heat input (0.20 lb/MMBtu) derived from gaseous fossil fuel.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

Condition Number	Conditions
C.14	**Equipment/Control Device ID:** 501A 40 CFR §60.45 Emissions and Fuel Monitoring. (a) Each owner or operator of an affected facility subject to the applicable emissions standard shall install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) for measuring NO_X emissions, and either oxygen (O_2) or carbon dioxide (CO_2) except as provided in paragraph (b) of this section. (b) Certain of the CEMS and COMS requirements under paragraph (a) of this section do not apply to owners or operators under the following conditions: (b)(3) Notwithstanding 60.13(b), installation of a CEMS for NO_X may be delayed until after the initial performance tests under 60.8 have been conducted. If the owner or operator demonstrates during the performance test that emissions of NO_X are less than 70 percent of the applicable standards in 60.44, a CEMS for measuring NO_X emissions is not required. If the initial performance test results show that NO_X emissions are greater than 70 percent of the applicable standard, the owner or operator shall install a CEMS for NO_X within one year after the date of the initial performance tests under 60.8 and comply with all other applicable monitoring requirements under this part. (b)(4) If an owner or operator is not required to and elects not to install any CEMS for either SO_2 or NO_X, a CEMS for measuring either O_2 or CO_2 is not required.
C.15	**Equipment/Control Device ID:** 501A (40 CFR 60.8, 40 CFR 60.46) Within 60 calendar days after achieving the maximum production rate at which this facility will be operated, but no later than 180 calendar days after its initial startup and at such other times as may be required by the Department under section 114 of the Clean Air Act, the owner/operator of this facility shall conduct performance tests. Performance tests shall be conducted on 501A to show compliance with the NO_x standard. Compliance with the NO_x standards shall be determined by conducting performance tests in accordance with the procedures and methods specified in Subparts A and D.
C.16	**Equipment/Control Device ID:** 502A This source is subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Provisions and Subpart Db - Standards Of Performance For Industrial -Commercial-Institutional Steam Generating Units , and S.C. Regulation 61-62.60 Subparts A and Db--Standards Of Performance For Industrial -Commercial-Institutional Steam Generating Units, as applicable. These sources shall comply with all applicable requirements of Subparts A and Db.
C.17	**Equipment/Control Device ID:** 502A In accordance with NSPS Subpart Db, 60.44b - Standard For Nitrogen Oxides (NO_X), paragraph (d), no owner or operator of an affected facility that simultaneously combusts natural gas and/or distillate oil with a potential SO_2 emissions rate of 26 ng/J (0.060 lb/MMBtu) or less with wood, municipal -type solid waste, or other solid fuel, except coal, shall cause to be discharged into the atmosphere from that affected facility any gases that contain NO_X in excess of 130 ng/J (0.30 lb/MMBtu) heat input. The 0.30 lb/million BTU limit applies when burning wood, TDF, natural gas, distillate oil, or any combination. Per 60.44b(h), for purposes of paragraph (i) of this section, the NO_X standards under this section apply at all times including periods of startup, shutdown, or malfunction. Per 60.44b(i), except as provided under paragraph (j) of this section, compliance with the emission limits under this section is determined on a 30-day rolling average basis.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

Condition Number	Conditions
C.18	**Equipment/Control Device ID:** 502A In accordance with NSPS Subpart Db, 60.48b - Emission Monitoring For Nitrogen Oxides, per paragraph (b), the owner or operator of an affected facility subject to a NO_X standard under 60.44b shall comply with paragraph (b)(1) of this section. (b)(1) Calibrate, maintain, and operate CEMS for measuring NO_X and CO_2 emissions discharged to the atmosphere, and shall record the output of the system. (c) The CEMS required under paragraph (b) of this section shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments. Per 60.48b(d), the 1-hour average NO_X emission rates measured by the continuous NO_X monitor required by paragraph (b) of this section and required under 60.13(h) shall be expressed lb/MMBtu heat input and shall be used to calculate the average emission rates under 60.44b. The 1-hour averages shall be calculated using the data points required under 60.13(h)(2). Per 60.48b(e), the procedures under 60.13 shall be followed for evaluation and operation of the continuous monitoring systems. Per 60.48b(f), when NO_X emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7 of appendix A of this part, Method 7A of appendix A of this part, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.
C.19	**Equipment/Control Device ID:** 502A Per NSPS Subpart Db, 60.49b - Reporting and Recordkeeping Requirements (NO_x), paragraph b), the owner or operator of each affected facility subject to the SO_2, PM, and/or NO_X emission limits under §§60.42b, 60.43b, and 60.44b shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in appendix B of this part. Per paragraph (d), except as provided in paragraph (d)(2) of this section, the owner or operator of an affected facility shall record and maintain records as specified in paragraph (d)(1) of this section. (d)(1) The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for coal, distillate oil, residual oil, natural gas, wood, and municipal -type solid waste for the reporting period. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. Per 60.49b(g), the owner or operator of an affected facility subject to the NO_X standards under 60.44b shall maintain records of the following information for each steam generating unit operating day: (g)(1) Calendar date; (g)(2) The average hourly NO_X emission rates (expressed as NO_2) (lb/MMBtu heat input) measured or predicted; (g)(3) The 30-day average NO_X emission rates (lb/MMBtu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days;

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

Condition Number	Conditions
	(g)(4) Identification of the steam generating unit operating days when the calculated 30 -day average NO_X emission rates are in excess of the NO_X emissions standards under 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken; (g)(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken; (g)(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data; (g)(7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted; (g)(8) Identification of the times when the pollutant concentration exceeded full span of the CEMS; (g)(9) Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3; and (g)(10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part. Per 60.49b(h), the owner or operator of any affected facility in any category listed in paragraph (h)(2) of this section is required to submit excess emission reports for any excess emissions that occurred during the reporting period. (h)(2) Any affected facility that is subject to the NO_X standard of 60.44b, and that: (h)(2)(i) Combusts natural gas, distillate oil, gasified coal, or residual oil with a nitrogen content of 0.3 weight percent or less. Per 60.49b(i), the owner or operator of any affected facility subject to the continuous monitoring requirements for NO_X under 60.48(b) shall submit reports containing the information recorded under paragraph (g) of this section. Per 60.49b(o), all records required under this section shall be maintained by the owner or operator of the affected facility for a period of 2 years following the date of such record. Per 60.49b(w), the reporting period for the reports required under this subpart is each 6-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

D. NESHAP PERIODIC REPORTING SCHEDULE SUMMARY

NESHAP Part	NESHAP Subpart	Compliance Monitoring Report Submittal Frequency	Reporting Period	Report Due Date
63	DDDDD	Semi-Annual	January 1 through June 30 July 1 through December 31	Postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period

1. This table summarizes only the periodic compliance reporting schedule. Additional reports may be required. See specific NESHAP Subpart for additional reporting requirements and associated schedule.
2. This reporting schedule does not supersede any other reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, 40 CFR Part 63, and/or Title V. The MACT reporting schedule may be adjusted to coincide with the Title V reporting schedule with prior approval from the Department in accordance with §63.10.a.5. This request may be made 1 year after the compliance date for the associated MACT standard.

E. NESHAP - CONDITIONS

Condition Number	Condition
E.1	All NESHAP notifications and reports shall be sent to the Manager of the Air Toxics Section, South Carolina Department of Health and Environmental Control - Bureau of Air Quality.
E.2	All NESHAP notifications and the cover letter to periodic reports shall be sent to the United States Environmental Protection Agency (US EPA) at the following address or electronically as required by the specific subpart: **US EPA, Region 4** **Air, Pesticides and Toxics Management Division** **61 Forsyth Street SW** **Atlanta, GA 30303**
E.3	This facility has processes subject to the provisions of S.C. Regulation 61 -62.63 and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and DDDDD--National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, And Institutional Boilers And Process Heaters . Existing affected sources shall be in compliance with the requirements of these Subparts by the compliance date, unless otherwise noted. A ny new affected sources shall comply with the requirements of these Subparts upon initial start-up unless otherwise noted.

F. AMBIENT AIR STANDARDS REQUIREMENTS

Condition Number	Condition

F. AMBIENT AIR STANDARDS REQUIREMENTS

Condition Number	Condition
F.1	Air dispersion modeling (or other method) has demonstrated that this facility's operation will not interfere with the attainment and maintenance of any state or federal ambient air standard. Any changes in the parameters used in this demonstration may require a review by the facility to determine continuing compl iance with these standards. These potential changes include any decrease in stack height, decrease in stack velocity, increase in stack diameter, decrease in stack exit temperature, increase in building height or building additions, increase in emission ra tes, decrease in distance between stack and property line, changes in vertical stack orientation, and installation of a rain cap that impedes vertical flow. Parameters that are not required in the determination will not invalidate the demonstration if they are modified. The emission rates used in the determination are listed in Attachment - Emission Rates for Ambient Air Standards of this permit. Higher emission rates may be administratively incorporated into Attachment - Emission Rates for Ambient Air Stan dards of this permit provided a demonstration using these higher emission rates shows the attainment and maintenance of any state or federal ambient air quality standard or with any other applicable requirement. Variations from the input parameters in the demonstration shall not constitute a violation unless the maximum allowable ambient concentrations identified in the standard are exceeded. The owner/operator shall maintain this facility at or below the emission rates as listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations of this permit. Should the facility wish to increase the emission rates listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations in the body of this permit, it may do so by the administrative process specified above. This is a State Only enforceable requirement.

G. PERIODIC REPORTING SCHEDULE

Compliance Monitoring Report Submittal Frequency	Reporting Period (Begins on the startup date of the source.)	Report Due Date
Quarterly	January-March April-June July-September October-December	April 30 July 30 October 30 January 30
Semiannual	January-June April-September July-December October-March	July 30 October 30 January 30 April 30
Annual	January-December April-March July-June October-September	January 30 April 30 July 30 October 30
Note: This reporting schedule does not supersede any federal reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, and 40 CFR Part 63. All federal reports must meet the reporting time frames specified in the federal standard unless the Department or EPA approves a change.		

H. REPORTING CONDITIONS

Condition Number	Condition
H.1	Reporting required in this permit, shall be submitted in a timely manner as directed in the Periodic Reporting Schedule of this permit.

H. REPORTING CONDITIONS

Condition Number	Condition
H.2	All reports and notifications required under this permit shall be submitted to the person indicated in the specific condition at the following address: **2600 Bull Street** **Columbia, SC 29201** The contact information for the local EQC Regional office can be found at: **http://www.scdhec.gov**
H.3	The owner/operator shall submit written notification to the Director of Engineering Services of the date construc tion is commenced, postmarked no later than 30 days after such date.
H.4	Unless elsewhere specified within this permit, all reports required under this permit shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality.
H.5	(S.C. Regulation 61 -62.1, Section II.J) For sources not required to have continuous emissions monitors, any malfunction of air pollution control equipment or system, process upset or other equipment failure which results in discharges of air contaminants lasting for one hour or more and which are greater than those discharges described for normal operation in the permit application shall be reported to the Department's local Environmental Quality Control Regional office within 24 hours after the beginning of the occurrence. The owner/operator shall also submit a written report within 30 days of the occurrence. This report shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality and shall include, at a minimum, the following: 1. The identity of the stack and/or emission point where the excess emissions occurred; 2. The magnitude of excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the excess emissions; 3. The time and duration of excess emissions; 4. The identity of the equipment causing the excess emissions; 5. The nature and cause of such excess emissions; 6. The steps taken to remedy the malfunction and the steps taken or planned to preven t the recurrence of such malfunction; 7. The steps taken to limit the excess emissions; and, 8. Documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated, to the maximum extent practicable, in a manner consistent with good practice for minimizing emissions.

I. PERMIT EXPIRATION AND EXTENSION

Condition Number	Condition
I.1	(S.C. Regulation 61-62.1, Section II.A.4) Approval to construct shall become invalid if construction: a. is not commenced within 18 months after receipt of such approval; b. is discontinued for a period of 18 months or more; or c. is not completed within a reasonable time as deemed by the Department. The Department may extend the construction permit for an additional 18 -month period upon a satisfactory showing that an extension is justified. This request must be made prior to the permit expiration.
I.2	This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

J. PERMIT TO OPERATE

Condition Number	Condition
J.1	(S.C. Regulation 61-62.1 Section II.F.2) The owner/operator or professional engineer in charge of the project shall certify that, to the best of his/her knowledge and belief and as a result of periodic observation during construction, the construction under application has been completed in accordance with the specifications agreed upon in the construction permit issued by the Department.
J.2	If construction is certified as provided in S.C. Regulation 61-62.1 Section II.F.2, the owner or operator, may operate the source in compliance with the terms and conditions of the construction permit until the operating permit is issued by the Department.
J.3	If construction is not built as specified in the permit application and associated construction permit(s), the owner/operator must submit to the Department a complete description of modifications that are at variance with the documentation of the construction permitting determination prior to commencing operation. Construction variances that would trigger additional requirements that have not been addressed prior to start of operation shall be considered construction without a permit.
J.4	(S.C. Regulations 61-62.1 Section II.F.3 and 61-62.70.7) The owner or operator shall submit a written request to the Director of the Engineering Services for a new or revised operating permit to cover any new or altered source postmarked no later than 15 days after the actual date of initial startup unless a more stringent time frame is required by regulation. The request should be made using the appropriate Title V modification form.

K. GENERAL CONDITIONS

Condition Number	Condition
K.1	The permittee shall pay permit fees to the Department in accordance with the requirements of S.C. Regulation 61-30, Environmental Protection Fees.
K.2	In the event of an emergency, as defined in S.C. Regulation 61-62.1, Section II.L, the owner or operator shall demonstrate the affirmative defense of an emergency through properly signed, contemporaneous operating logs, and other relevant evidence that verify: 1. An emergency occurred, and the owner or operator can identify the cause(s) of the emergency; 2. The permitted source was at the time the emergency occurred being properly operated; 3. During the period of the emergency, the owner or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and 4. The owner or operator gave a verbal notification of the emergency to the Department within 24 hours of the time when emission limitations were exceeded, followed by a written report within 30 days. The written report shall include, at a minimum, the information required by S.C. Regulation 61-62.1, Section II.J.1.c.i through viii. The written report shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. In any enforcement action, the owner or operator seeking to establish the occurrence of an emergency has the burden of proof. This provision is in addition to any emergency, or upset provision contained in any applicable requirement.

K. GENERAL CONDITIONS

Condition Number	Condition
K.3	(S.C. Regulation 61-62.1, Section II.O) Upon presentation of credentials and other documents as may be required by law, the owner or operator shall allow the Department or an authorized representative to perform the following: 1. Enter the facility whe re emissions-related activity is conducted, or where records must be kept under the conditions of the permit. 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. 3. Inspect any facilities, equi pment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit. 4. As authorized by the Federal Clean Air Act and/or the S.C. Pollution Control Act, sample or monitor at reasonable times s ubstances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

L. RESERVED

No. 2 Power Boiler – IP Eastover (1900-0046)

In February 2017, IP Eastover requested a Title V permit modification at the No. 2 Power Boiler (ID 502A) to use dual fuel natural gas/No.2 fuel oil burners. The boiler primarily combusts wood waste and tire-derived fuel, or TDF. During startup of the boiler, natural gas will be used, with propane as a back-up fuel. Natural gas will also be used as fuel when wood waste and TDF are not available. No. 5 fuel oil, No. 6 fuel oil, and coal are no longer used at the boiler. The No. 2 Power Boiler is also permitted as a backup control device to combust non-condensable gases (NCG) and r ectified methanol at a maximum rate of 2.0 gallons per minute.

The following table indicates the permitted limits for SO_2 at the No. 2 Power Boiler:

BACT SO_2 Limits	**Conversion to SO_2 lb/hr maximum heat input = 500 million BTU/hr**
≤ 1.2 lb/10^6 Btu (coal)	600 lb/hr This limit will remain in the permit; however, the facility is no longer permitted to combust coal.
≤ 0.5 lb/10^6 Btu (oil other than very low sulfur oil)	250 lb/hr This limit will remain in the permit; however, only No. 2 fuel oil to is permitted for combustion.
≤ 500 tpy	114 lb/hr
≤ 0.3 lb/10^6 Btu (bark/wood waste or tire-derived fuel (TDF))	150 lb/hr
Prorated during combustion of coal with fuel oil and/or/wood, per permit condition no. 07.6	This limit will remain in the permit; however, the facility is no longer permitted to combust a coal/oil mixture.
Standard 1 Limit	**Conversion to lb/hr maximum heat input = 500 million BTU/hr**
2.3 lb/10^6 Btu	1150 lb/hr

The following table shows the SO_2 emissions during combustion of rectified methanol and NCG, based on emission factors provided for the Title V permit renewal:

Rectified Methanol SO_2 emission factor = 0.675 lb/gal	Rectified Methanol SO_2 = 81.0 lb/hr (maximum 1,051,200 gal/yr, or 2 gal/min)
NCG SO_2 emission factor = 5.83 lb/ADTUBP	NCG SO_2 = 658.87 lb/hr (maximum 990,000 ADTUBP/yr)

- ADTUBP = air-dried tons unbleached pulp

From: Gillam, Rick
Location: Discuss of SO2 DRR Modeling: 12D
Importance: Normal
Subject: Conf Line: [redacted]
Start Date/Time: Fri 5/12/2017 2:00:00 PM
End Date/Time: Fri 5/12/2017 3:00:00 PM

12D

From: Gillam, Rick
Location: Discuss of SO2 DRR Modeling
Importance: Normal
Subject: Conf Line: [redacted]
Start Date/Time: Fri 5/12/2017 2:00:00 PM
End Date/Time: Fri 5/12/2017 3:00:00 PM

To: Cordes, Ben (EEC)[Ben.Cordes@ky.gov]
Cc: Howard, Chris[Howard.Chris@epa.gov]; Walther, Katherine[Walther.Katherine@epa.gov]; Davis, Kevin (EEC)[Kevin.Davis@ky.gov]
From: Gillam, Rick
Sent: Mon 6/5/2017 4:46:25 PM
Subject: RE: KY SO2 DRR Modeling

Thanks for the update Ben. We are looking forward to seeing the revised modeling.

-Rick

From: Cordes, Ben (EEC) [mailto:Ben.Cordes@ky.gov]
Sent: Monday, June 5, 2017 12:25 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Howard, Chris <Howard.Chris@epa.gov>; Walther, Katherine <Walther.Katherine@epa.gov>; Davis, Kevin (EEC) <Kevin.Davis@ky.gov>
Subject: KY SO2 DRR Modeling

Hi Rick,

Just wanted to give you an update concerning the revised SO2 DRR modeling for the 3 Kentucky sources before our regional call, today.

- We have received the complete revised modeling from **Duke Energy-East Bend**.

- We have received the revised modeling report for **Owensboro Municipal Utilities-Elmer Smith Station**, no modeling files, yet.

- We have not received anything from **Century Aluminum-Hawesville**. I have been in touch with Trinity Consultants, who is preparing the revised modeling, and they stated they are at the end of that modeling analysis. Some things came up that needed to be checked (not clear what) but they stated it ultimately did not relate to any new SO2 emissions. I was told we will be receiving the report directly from Century Aluminum.

Hope this helps. I am working on setting up an FTP transfer for the files we have. Be looking for that in your inbox, soon. Thank you for your patience.

Thanks,

Ben A. Cordes, Supervisor

Air Dispersion Modeling Section

Kentucky Division for Air Quality

300 Sower Blvd, 2nd Floor

Frankfort, KY 40601

(502) 782-6586

To: Anderson, Tom[tom.anderson@ncdenr.gov]
From: Gillam, Rick
Sent: Thur 6/1/2017 11:20:32 AM
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

It came through this time. Thanks!

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Thursday, June 1, 2017 7:14 AM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

10-4. See if this one goes through. If it doesn't I can load it to our ftp server.

TA

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Wednesday, May 31, 2017 3:25 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

Hi Tom,

Thanks for the responses. Unfortunately, for security reasons our email system stripped your .zip file and it was not delivered. Please rename to an extension other than .zip or .exe and it should come through fine.

Thanks,

-Rick

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Wednesday, May 31, 2017 3:15 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Michael Pjetraj <michael.pjetraj@ncdenr.gov>; Coughlin, Patrick W <Patrick.Coughlin@duke-energy.com>; Knudsen, Kris W <Kris.Knudsen@duke-energy.com>; Nancy Jones <nancy.jones@ncdenr.gov>; Porter, Matthew k <Matthew.Porter@ncdenr.gov>; Zarnowski, Alexander R <alexander.zarnowski@ncdenr.gov>
Subject: Responses to Comments - SO2 Data Requirement Rule Modeling

Rick,

I have provided responses to your comments, in red text below each of your comments, regarding the SO2 DRR modeling for the Duke Energy facilities. Additionally, I have attached a .zip file that contains several files referenced in my comments.

Please let me know if you have any further questions or require additional information.

Thanks,

Tom A.

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Thursday, May 25, 2017 3:10 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Cc: Rinck, Todd <Rinck.Todd@epa.gov>; Worley, Gregg <Worley.Gregg@epa.gov>; Kemker, Carol <Kemker.Carol@epa.gov>
Subject: RE: Review Comments - SO2 Data Requirement Rule Modeling Comments

Hi Tom,

Pursuant to a phone conversation between Mike Abraczinskas and Carol Kemker, I have gone through the comments Stan sent you previously and pared them down to the most significant issues where we need further information to complete our analysis. The revised list is provided below. Please give me a call to discuss when you have a chance.

Thanks,

Rick

Duke Energy Marshall Steam Station

1) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

SO2 emissions were obtained from Duke Energy staff.

Duke Response: The SO2 emissions data were obtained from the data reported by our CEMS, using the same data base that is reported to the EPA Clean Air Markets Division (CAMD). All substituted values are as reported to CAMD in accordance with Part 75 requirements. SO2 data availability was 98.9% or greater for all stacks during this period.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

Hourly varying stack parameters were obtained from Duke Energy staff.

Duke Response: The hourly stack exit velocity was calculated using Part 75 CEMS data. CEMS monitor data availability for flow measurement was 99.5% or greater for all stacks during this period. The hourly exit velocity was calculated from the hourly flow and stack temperature data using the following equation.

V msec=A STD ft3hr x hr60 min x min60 sec x B+480528 x π x D22x 0.3048 m3ft3

Where:

V is the stack exist velocity in meter/sec

A is the Part 75 stack flow rate in standard cubic feet per hour

B is the stack gas temperature in degree F

D is the stack diameter in feet

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 8, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

<u>Duke Energy Allen Steam Station</u>

1) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 9, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Mayo Electric Generating Plant

1) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

The text in Section 7, page 4, of the modeling report that indicates that the two boilers vent to individual stacks is an error. The statement was simply an inadvertent carryover from another report that was used as a template and the two boilers do indeed vent from only a single stack.

2) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.). Additionally, the hourly emissions files used in the modeling should be provided for review.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 6, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

The hourly emission rates for both the Duke – Roxboro units and the CPI units were obtained from actual CEM data for the period 2013-2015 and were obtained from EPA's Clean Air Markets Database (https://ampd.epa.gov/ampd/).

The hourly emissions file used in the modeling is attached to this message (filename:

mayo_hourly emissions SO2.txt)

Duke Energy Belew Creek Generating Station

1) Modeled Emissions

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

Duke Response: Use of "before and after" temperatures might be appropriate for short periods of missing data where the operating conditions are similar during the missing period, but for longer periods of missing data, an average temperature is a more appropriate representation since the operating conditions (minimum to maximum generating load and heat input) may vary significantly over time . Also, due to the continuous operation of the wet scrubbers, there is a relatively small range of temperature variation (average 121 °F with standard deviation of 3.5 °F) and there should be little impact on the modeling whether using the average temperature or a temperature based on the period before and after.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

Duke Response: The two auxiliary boilers combust fuel oil that is exclusively the ULSD fuel oil supply that is commercially available in the region. The maximum emissions rate for these boilers is 0.27 lb/hr each. The emissions rate for the Belews Creek Units 1 and 2 EGU boilers operating at maximum averages approximately 1,200 lb/hr, with a typical range (95% of data) between 600 to 2000 lb/hr.

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

Duke Response: A file including all SO2 sources within 50 km is attached to this message (filename: BCInventory010517.xlsx). Section 13, pages 22-25, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

Attached are two files to support the exclusion of the boilers from the modeling – 1) a 2015 Permit Review in which removal of the boilers is discussed and, 2) the latest 2017 Compliance Inspection Report that shows all permitted sources at the facility.

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

•□□□□□□□□ The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

Duke Response: The modeled emissions rate was estimated by dividing the reported annual emissions over the period from 2013 to 2015 by 8760 hour/year. The inventory did not provide information on the hours of operation, therefore 8,760 hours of operation was used to estimate the lbs/hr emissions rate used in the modeling .

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Friday, May 12, 2017 1:44 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

FYI.

From: Anderson, Tom
Sent: Thursday, April 27, 2017 11:53 AM
To: Abraczinskas, Michael <michael.abraczinskas@ncdenr.gov>; Pjetraj, Michael <michael.pjetraj@ncdenr.gov>; Strait, Randy P <randy.strait@ncdenr.gov>; Masemore, Sushma <sushma.masemore@ncdenr.gov>
Cc: Willets, William <william.willets@ncdenr.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

Shall we convene to discuss how we should respond to Stan's comments? None of his comments are likely to require any re-modeling nor make any difference at all in any modeled impacts if we do.

TA

From: Krivo, Stan [mailto:Krivo.Stanley@epa.gov]
Sent: Thursday, April 27, 2017 11:34 AM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: Review Comments - SO2 Data Requirement Rule Modeling Comments

Tom,

As I indicated in our telephone call today, the follow are my observations and review comments on the air quality modeling provided four SO_2 Data Requirement Rule (DRR) sources (i.e., area

modeling assessments) for the North Carolina 3rd round of SO_2 attainment designations. Only the comments preceded by an asterisk request additional information, clarification, and/or analyses.

Duke Energy Marshall Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Marshall Steam Station appear not to have been performed. The determination was apparently made based on the qualitative review of the satellite imagery of land use types provided Figure 3.

- *Although the determination of rural mode for the Marshall facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

3) Intermittent Emission Sources

- Duke-Marshall's two emergency generators, emergency water pump, and emergency air compressor were considered as intermittent emission sources based on their frequency of operation and magnitude of SO_2 emissions. The magnitude of their operation during the years 2013-2015 were provided in Table 2.

- *The basis for the reported emissions in Table 2 should be provided (e.g., routine maintenance/testing operations). The frequency and duration of routine operational testing of each unit should be provided to support their classification as intermittent emission units.

4) Receptor Grids

- *To ensure identification of the controlling concentration, the maximum concentration and all concentrations challenging the maximum concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *The reason the 2013-2015 NCDAQ emission inventory was used in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

6) Model Results

- *The location of the modeled design value concentration should be provided to ensure it was in a grid of 100-m resolution.

Duke Energy Allen Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Allen Steam Station was not performed. The determination was made based on the qualitative review of the aerial satellite image provided in Figure 3.

- *Although the determination of rural mode for the Allen facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Receptor Grids

- *The controlling concentration and all concentrations challenging the controlling

concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

3) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *Although the provided qualitative assessment results confirmed the assumption that Resolute Paper's impacts would be less than those from Duke Marshall, Resolute Paper has SO_2 emissions of over 2,000 TPY resulting in a Q/D of 66. Based on this information, Resolute Paper should have been included in the cumulative assessment to characterize the background SO_2 conditions about Duke Allen Steam Station.

- *Use of the 20D procedure, as indicated in Table 3, identifies the inclusion of the Resolute Paper facility in the cumulative impact modeling. Note that the emissions from sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The reason and appropriateness of the 2013-2015 NCDAQ's emission inventory use in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

- *Although actual hourly emissions from CEMS on the Duke Marshall facility were used in the cumulative modeling, the emission rates for other nearby sources (e.g., Resolute Paper) included in the modeling would be based only on the maximum annual emissions for the 2013-2015 period. Because state/county emission inventories generally only contain annual allowable emission rates, the basis and appropriateness for the modeled hourly emission rates and stack parameters for these emission sources should be provided and discussed.

<u>Duke Energy Mayo Electric Generating Plant</u>

1) Model Selection

- *The AERMAP version number was indicated to be 11130. Because the correct number is 11103, confirmation is needed that the correct model version was used.

2) Meteorological Data

- *The surface and upper air NWS stations that were considered for the Duke-Mayo impact assessment should be provided along with the specific reason(s) the Danville Regional Airport

and Greensboro upper air station were selected.

- *The surface moisture was characterized as average based the comparison of monthly precipitation totals for the 2013-2015 data period to the 30-year data record. The specific precipitation information should be provided (e.g., table containing these values for comparison) to support/document this determination.

3) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Mayo Electric Generating Plant was not performed. The determination was made based on the qualitative review of the available satellite imagery provided Figure 2.

- *Although the determination of rural mode for the Mayo facility may be appropriate, a quantitative land use characterization should be provided for documentation.

4) Receptor Grids

- *The controlling concentration was indicated to have been located within 100-meter spacing (i.e., within 3 km). To ensure this value is the controlling concentration, confirmation is needed that all concentrations challenging the controlling concentration (e.g., within 10%) were also modeled in grids of 100-m resolution.

5) Facility Layout.

- *Confirmation is needed that the identified boundary in Figure 3 is actually a fence line, or property line with barriers to public access so it can be considered non-ambient air (i.e., area not included in the impact assessment). Non-ambient air must be separated from public access by some form of barrier.

6) Intermittent Emission Sources

- The exclusion of the emergency generator and Quench pump for the impact assessment was based on the Table 2 estimated/calculated maximum emission rates. The bases for these calculations was indicated to be NC DAQ IC Spreadsheets using 0.0015% ULSD.

- Table 2 maximum SO_2 hourly emission rate and maximum annual emissions would indicate annual operations of 7.5 hours for the emergency generator and 40 hours for the emergency

quench pump.

- *Exclusion of these sources should be based on their past operation and emissions/fuel used during the 2013-2015 modeled period. The actual hours of operation and emission rates during this period should be provided to document and support their exclusion as intermittent sources.

7) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

8) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.).

<u>Duke Energy Belew Creek Generating Station</u>

1) Rural/Urban Project Area Determination

- *The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. The determination was indicated to be bases on this type of assessment. Documentation of this quantitative assessment is needed to support the rural determination (e.g., figure(s) providing the land use characterizations).

2) Bowen Ratio Moisture Determination

- *The percentile labels in Table 4 (Greensboro 70th and 30th Percentile of Precipitation) appear to have been reversed (i.e., 70th percentile should have 70 percent of the observations less than or equal to the value while the 30 percentile value should have 30 percent of the observations equal to or less than the value).

- *Table 5 appears to have an incorrect moisture determined for March 2014. It appears that this year/period was "WET".

- *The effect of the above apparent discrepancies on the provided impact assessments should be addressed.

3) Receptor Grids

- *Confirmation is needed that controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) were modeled in grids of 100-m resolution.

4) Modeled Emissions

- *Table 6 provides the Belews Creek boiler emissions. These emissions are only provided in TPY for the years 2013-2015. Section 11.3 indicated prior to 2015 the sulfur content for the Auxiliary Boilers (ES-3 and ES-4) was 0.05% sulfur. The reason 0.5% sulfur (table footnote) was used for the annual TPY provided in Table 6 should be provided.

- *Although the maximum hourly SO_2 emissions for the six emergency engines provided in Table 7 appears small, they should be compared to the maximum hourly emissions from the boilers to determine if the routine maintenance operation of these engines could affect the annual distribution of the daily maximum 1-hour average concentrations. Each engine is indicated to be permitted for up to 100 hours of routine maintenance operation per year. Their actual operational characteristics for routine maintenance operation (e.g., separate operation of each engine less than one hour per week) during the modeled period should be provided to support treating them as intermittent sources for this modeling assessment.

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

- *Because of ultra-low sulfur fuel oil was indicated to have been used for the Auxiliary Boilers in 2015, the maximum hourly SO_2 emissions were 0.57 lbs./hr. For the other years, the maximum hourly emission rate was indicated to be 176 lbs/hr using 0.05% sulfur fuel oil. An explanation is needed because Table 6 indicates 0.5% sulfur oil was used.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission

rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

- *Although appearing appropriate, the basis for using target values of 1 TPY (Actual Emissions) within 25 km and 50 TPY (Actual Emissions) between 25 km to 50 km to include sources was not provided or explained. Nether was the use of the "significant concentration gradient" procedure. The bases for both these procedures should be provided and explained.

- *Considering most State/Local inventories of emission sources contain only allowable emissions, the procedure/process used to obtain applicable actual emissions (e.g., annual and 1-hour values) for 2013-2015 modeled period, used in both the screening of the Table 9 nearby sources and subsequent impact modeling (i.e., Ingredion Incorporated and Hanes Dye & Finishing Company), should be provided. [Note: The 20D procedure was developed/defined considering facility's total annual allowable emissions in TPY.]

- *Impact modeling was used to eliminate Ingredion Incorporated and Hanes Dye & Finishing Company from the cumulative impact assessment. Specific modeling information (e.g., emission rates, exit parameters, etc.) should be provided as well as the modeling results. The resulting isopleth maps and concentration gradient analyses used in this assessment should be provided. The maximum, not the 4th highest, modeled concentrations should be used in these analyses.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

o The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

- *The screening procedures for the removal of nearby sources from the cumulative impact

modeling should consider the magnitude of each source's impact within Belew's SIA and not just at the Belew facility location. This analysis should consider the facility's maximum impacts rather than maximum in the form of each standard (e.g., 4th highest).

- It appears that actual emissions were used for most or all nearby sources.

- *The 20D procedure is indicated in Table 9 and appears to have been used to further screen emission sources. Note that the Q value should be the maximum allowable annual emissions in TPY. Actual emissions are not appropriate for the 20D procedure. The annual allowable emissions from all sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The isopleth map showing the concentration gradient was not provided and explained. The location of the Table 9 sources in Figure 11 do not reflect the distances provided in the table.

- *The significant concentration gradient (SCG) in the vicinity of the Belews Creek Generating Station was used to determine the other SO_2 emission sources to include in the air quality impact assessment. The specific target values and procedures used in this determination the SCGs should be provided.

- *The significant impact levels (SIL) and 20D procedure have also been used in the identification of other emission facilities to include in a cumulative impact assessment. Given the sometimes conflicting results using these procedures, the criteria used in this determination should be provided.

Please let me know if you have any questions or would like to discuss any item.

Thanks…sjk

Stanley Krivo, CCM, QEP

U.S. Environmental Protection Agency

Atlanta Federal Center

61 Forsyth Street, SW

Atlanta, GA 30303-8960

Phone: 404/562-9123

Fax: 404/562-9019

To: Anderson, Tom[tom.anderson@ncdenr.gov]
From: Gillam, Rick
Sent: Wed 5/31/2017 7:25:02 PM
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

Hi Tom,

Thanks for the responses. Unfortunately, for security reasons our email system stripped your .zip file and it was not delivered. Please rename to an extension other than .zip or .exe and it should come through fine.

Thanks,

-Rick

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Wednesday, May 31, 2017 3:15 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Michael Pjetraj <michael.pjetraj@ncdenr.gov>; Coughlin, Patrick W <Patrick.Coughlin@duke-energy.com>; Knudsen, Kris W <Kris.Knudsen@duke-energy.com>; Nancy Jones <nancy.jones@ncdenr.gov>; Porter, Matthew k <Matthew.Porter@ncdenr.gov>; Zarnowski, Alexander R <alexander.zarnowski@ncdenr.gov>
Subject: Responses to Comments - SO2 Data Requirement Rule Modeling

Rick,

I have provided responses to your comments, in red text below each of your comments, regarding the SO2 DRR modeling for the Duke Energy facilities. Additionally, I have attached a .zip file that contains several files referenced in my comments.

Please let me know if you have any further questions or require additional information.

Thanks,

Tom A.

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Thursday, May 25, 2017 3:10 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Cc: Rinck, Todd <Rinck.Todd@epa.gov>; Worley, Gregg <Worley.Gregg@epa.gov>; Kemker, Carol <Kemker.Carol@epa.gov>
Subject: RE: Review Comments - SO2 Data Requirement Rule Modeling Comments

Hi Tom,

Pursuant to a phone conversation between Mike Abraczinskas and Carol Kemker, I have gone through the comments Stan sent you previously and pared them down to the most significant issues where we need further information to complete our analysis. The revised list is provided below. Please give me a call to discuss when you have a chance.

Thanks,

Rick

Duke Energy Marshall Steam Station

1) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

SO2 emissions were obtained from Duke Energy staff.

Duke Response: The SO2 emissions data were obtained from the data reported by our CEMS, using the same data base that is reported to the EPA Clean Air Markets Division (CAMD). All substituted values are as reported to CAMD in accordance with Part 75 requirements. SO2 data availability was 98.9% or greater for all stacks during this period.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

Hourly varying stack parameters were obtained from Duke Energy staff.

Duke Response: The hourly stack exit velocity was calculated using Part 75 CEMS data. CEMS monitor data availability for flow measurement was 99.5% or greater for all stacks during this period. The hourly exit velocity was calculated from the hourly flow and stack temperature data using the following equation.

V msec=A STD ft3hr x hr60 min x min60 sec x B+480528 x π x D22x 0.3048 m3ft3

Where:

V is the stack exist velocity in meter/sec

A is the Part 75 stack flow rate in standard cubic feet per hour

B is the stack gas temperature in degree F

D is the stack diameter in feet

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 8, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Allen Steam Station

1) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 9, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Mayo Electric Generating Plant

1) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

The text in Section 7, page 4, of the modeling report that indicates that the two boilers vent to individual stacks is an error. The statement was simply an inadvertent carryover from another report that was used as a template and the two boilers do indeed vent from only a single stack.

2) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.). Additionally, the hourly emissions files used in the modeling should be provided for review.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 6, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

The hourly emission rates for both the Duke – Roxboro units and the CPI units were obtained from actual CEM data for the period 2013-2015 and were obtained from EPA's Clean Air Markets Database (https://ampd.epa.gov/ampd/).

The hourly emissions file used in the modeling is attached to this message (filename: mayo_hourly emissions SO2.txt)

Duke Energy Belew Creek Generating Station

1) Modeled Emissions

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

Duke Response: Use of "before and after" temperatures might be appropriate for short periods of missing data where the operating conditions are similar during the missing period, but for longer periods of missing data, an average temperature is a more appropriate representation since the operating conditions (minimum to maximum generating load and heat input) may vary significantly over time . Also, due to the continuous operation of the wet scrubbers, there is a relatively small range of temperature variation (average 121 °F with standard deviation of 3.5 °F) and there should be little impact on the modeling whether using the average temperature or a temperature based on the period before and after.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

Duke Response: The two auxiliary boilers combust fuel oil that is exclusively the ULSD fuel oil supply that is commercially available in the region. The maximum emissions rate for these boilers is 0.27 lb/hr each. The emissions rate for the Belews Creek Units 1 and 2 EGU boilers operating at maximum averages approximately 1,200 lb/hr, with a typical range (95% of data) between 600 to 2000 lb/hr.

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

Duke Response: A file including all SO2 sources within 50 km is attached to this message (filename: BCInventory010517.xlsx). Section 13, pages 22-25, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

Attached are two files to support the exclusion of the boilers from the modeling – 1) a 2015 Permit Review in which removal of the boilers is discussed and, 2) the latest 2017 Compliance Inspection Report that shows all permitted sources at the facility.

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0

indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

•□□□□□□□□ The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

Duke Response: The modeled emissions rate was estimated by dividing the reported annual emissions over the period from 2013 to 2015 by 8760 hour/year. The inventory did not provide information on the hours of operation, therefore 8,760 hours of operation was used to estimate the lbs/hr emissions rate used in the modeling .

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Friday, May 12, 2017 1:44 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

FYI.

From: Anderson, Tom
Sent: Thursday, April 27, 2017 11:53 AM
To: Abraczinskas, Michael <michael.abraczinskas@ncdenr.gov>; Pjetraj, Michael <michael.pjetraj@ncdenr.gov>; Strait, Randy P <randy.strait@ncdenr.gov>; Masemore, Sushma <sushma.masemore@ncdenr.gov>
Cc: Willets, William <william.willets@ncdenr.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

Shall we convene to discuss how we should respond to Stan's comments? None of his comments are likely to require any re-modeling nor make any difference at all in any modeled impacts if we do.

TA

From: Krivo, Stan [mailto:Krivo.Stanley@epa.gov]
Sent: Thursday, April 27, 2017 11:34 AM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: Review Comments - SO2 Data Requirement Rule Modeling Comments

Tom,

As I indicated in our telephone call today, the follow are my observations and review comments on the air quality modeling provided four SO_2 Data Requirement Rule (DRR) sources (i.e., area modeling assessments) for the North Carolina 3rd round of SO_2 attainment designations. Only the comments preceded by an asterisk request additional information, clarification, and/or analyses.

Duke Energy Marshall Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Marshall Steam Station appear not to have been performed. The determination was apparently made based on the qualitative review of the satellite imagery of land use types provided Figure 3.

- *Although the determination of rural mode for the Marshall facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to

replace/substitute missing actual emissions.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

3) Intermittent Emission Sources

- Duke-Marshall's two emergency generators, emergency water pump, and emergency air compressor were considered as intermittent emission sources based on their frequency of operation and magnitude of SO_2 emissions. The magnitude of their operation during the years 2013-2015 were provided in Table 2.

- *The basis for the reported emissions in Table 2 should be provided (e.g., routine maintenance/testing operations). The frequency and duration of routine operational testing of each unit should be provided to support their classification as intermittent emission units.

4) Receptor Grids

- *To ensure identification of the controlling concentration, the maximum concentration and all concentrations challenging the maximum concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *The reason the 2013-2015 NCDAQ emission inventory was used in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

6) Model Results

- *The location of the modeled design value concentration should be provided to ensure it was in a grid of 100-m resolution.

Duke Energy Allen Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Allen Steam Station was not performed. The determination was made based on the qualitative review of the aerial satellite image provided in Figure 3.

- *Although the determination of rural mode for the Allen facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Receptor Grids

- *The controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

3) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *Although the provided qualitative assessment results confirmed the assumption that Resolute Paper's impacts would be less than those from Duke Marshall, Resolute Paper has SO_2 emissions of over 2,000 TPY resulting in a Q/D of 66. Based on this information, Resolute Paper should have been included in the cumulative assessment to characterize the background SO_2 conditions about Duke Allen Steam Station.

- *Use of the 20D procedure, as indicated in Table 3, identifies the inclusion of the Resolute Paper facility in the cumulative impact modeling. Note that the emissions from sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The reason and appropriateness of the 2013-2015 NCDAQ's emission inventory use in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

- *Although actual hourly emissions from CEMS on the Duke Marshall facility were used in the cumulative modeling, the emission rates for other nearby sources (e.g., Resolute Paper)

included in the modeling would be based only on the maximum annual emissions for the 2013-2015 period. Because state/county emission inventories generally only contain annual allowable emission rates, the basis and appropriateness for the modeled hourly emission rates and stack parameters for these emission sources should be provided and discussed.

Duke Energy Mayo Electric Generating Plant

1) Model Selection

- *The AERMAP version number was indicated to be 11130. Because the correct number is 11103, confirmation is needed that the correct model version was used.

2) Meteorological Data

- *The surface and upper air NWS stations that were considered for the Duke-Mayo impact assessment should be provided along with the specific reason(s) the Danville Regional Airport and Greensboro upper air station were selected.

- *The surface moisture was characterized as average based the comparison of monthly precipitation totals for the 2013-2015 data period to the 30-year data record. The specific precipitation information should be provided (e.g., table containing these values for comparison) to support/document this determination.

3) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Mayo Electric Generating Plant was not performed. The determination was made based on the qualitative review of the available satellite imagery provided Figure 2.

- *Although the determination of rural mode for the Mayo facility may be appropriate, a quantitative land use characterization should be provided for documentation.

4) Receptor Grids

- *The controlling concentration was indicated to have been located within 100-meter spacing (i.e., within 3 km). To ensure this value is the controlling concentration, confirmation is needed

that all concentrations challenging the controlling concentration (e.g., within 10%) were also modeled in grids of 100-m resolution.

5) Facility Layout.

- *Confirmation is needed that the identified boundary in Figure 3 is actually a fence line, or property line with barriers to public access so it can be considered non-ambient air (i.e., area not included in the impact assessment). Non-ambient air must be separated from public access by some form of barrier.

6) Intermittent Emission Sources

- The exclusion of the emergency generator and Quench pump for the impact assessment was based on the Table 2 estimated/calculated maximum emission rates. The bases for these calculations was indicated to be NC DAQ IC Spreadsheets using 0.0015% ULSD.

- Table 2 maximum SO_2 hourly emission rate and maximum annual emissions would indicate annual operations of 7.5 hours for the emergency generator and 40 hours for the emergency quench pump.

- *Exclusion of these sources should be based on their past operation and emissions/fuel used during the 2013-2015 modeled period. The actual hours of operation and emission rates during this period should be provided to document and support their exclusion as intermittent sources.

7) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

8) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.).

<u>Duke Energy Belew Creek Generating Station</u>

1) Rural/Urban Project Area Determination

- *The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. The determination was indicated to be bases on this type of assessment. Documentation of this quantitative assessment is needed to support the rural determination (e.g., figure(s) providing the land use characterizations).

2) Bowen Ratio Moisture Determination

- *The percentile labels in Table 4 (Greensboro 70th and 30th Percentile of Precipitation) appear to have been reversed (i.e., 70th percentile should have 70 percent of the observations less than or equal to the value while the 30 percentile value should have 30 percent of the observations equal to or less than the value).

- *Table 5 appears to have an incorrect moisture determined for March 2014. It appears that this year/period was "WET".

- *The effect of the above apparent discrepancies on the provided impact assessments should be addressed.

3) Receptor Grids

- *Confirmation is needed that controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) were modeled in grids of 100-m resolution.

4) Modeled Emissions

- *Table 6 provides the Belews Creek boiler emissions. These emissions are only provided in TPY for the years 2013-2015. Section 11.3 indicated prior to 2015 the sulfur content for the Auxiliary Boilers (ES-3 and ES-4) was 0.05% sulfur. The reason 0.5% sulfur (table footnote) was used for the annual TPY provided in Table 6 should be provided.

- *Although the maximum hourly SO_2 emissions for the six emergency engines provided in Table 7 appears small, they should be compared to the maximum hourly emissions from the boilers to determine if the routine maintenance operation of these engines could affect the annual distribution of the daily maximum 1-hour average concentrations. Each engine is indicated to be permitted for up to 100 hours of routine maintenance operation per year. Their actual operational characteristics for routine maintenance operation (e.g., separate operation of each

engine less than one hour per week) during the modeled period should be provided to support treating them as intermittent sources for this modeling assessment.

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

- *Because of ultra-low sulfur fuel oil was indicated to have been used for the Auxiliary Boilers in 2015, the maximum hourly SO_2 emissions were 0.57 lbs./hr. For the other years, the maximum hourly emission rate was indicated to be 176 lbs/hr using 0.05% sulfur fuel oil. An explanation is needed because Table 6 indicates 0.5% sulfur oil was used.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

- *Although appearing appropriate, the basis for using target values of 1 TPY (Actual Emissions) within 25 km and 50 TPY (Actual Emissions) between 25 km to 50 km to include sources was not provided or explained. Nether was the use of the "significant concentration gradient" procedure. The bases for both these procedures should be provided and explained.

- *Considering most State/Local inventories of emission sources contain only allowable emissions, the procedure/process used to obtain applicable actual emissions (e.g., annual and 1-hour values) for 2013-2015 modeled period, used in both the screening of the Table 9 nearby sources and subsequent impact modeling (i.e., Ingredion Incorporated and Hanes Dye & Finishing Company), should be provided. [Note: The 20D procedure was developed/defined considering facility's total annual allowable emissions in TPY.]

- *Impact modeling was used to eliminate Ingredion Incorporated and Hanes Dye & Finishing Company from the cumulative impact assessment. Specific modeling information (e.g., emission

rates, exit parameters, etc.) should be provided as well as the modeling results. The resulting isopleth maps and concentration gradient analyses used in this assessment should be provided. The maximum, not the 4th highest, modeled concentrations should be used in these analyses.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

o The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

- *The screening procedures for the removal of nearby sources from the cumulative impact modeling should consider the magnitude of each source's impact within Belew's SIA and not just at the Belew facility location. This analysis should consider the facility's maximum impacts rather than maximum in the form of each standard (e.g., 4th highest).

- It appears that actual emissions were used for most or all nearby sources.

- *The 20D procedure is indicated in Table 9 and appears to have been used to further screen emission sources. Note that the Q value should be the maximum allowable annual emissions in TPY. Actual emissions are not appropriate for the 20D procedure. The annual allowable emissions from all sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The isopleth map showing the concentration gradient was not provided and explained. The location of the Table 9 sources in Figure 11 do not reflect the distances provided in the table.

- *The significant concentration gradient (SCG) in the vicinity of the Belews Creek Generating Station was used to determine the other SO_2 emission sources to include in the air quality impact assessment. The specific target values and procedures used in this determination the SCGs should be provided.

- *The significant impact levels (SIL) and 20D procedure have also been used in the identification of other emission facilities to include in a cumulative impact assessment. Given the sometimes conflicting results using these procedures, the criteria used in this determination should be provided.

Please let me know if you have any questions or would like to discuss any item.

Thanks…sjk

Stanley Krivo, CCM, QEP

U.S. Environmental Protection Agency

Atlanta Federal Center

61 Forsyth Street, SW

Atlanta, GA 30303-8960

Phone: 404/562-9123

Fax: 404/562-9019

To: Anderson, Tom[tom.anderson@ncdenr.gov]
Cc: Rinck, Todd[Rinck.Todd@epa.gov]; Worley, Gregg[Worley.Gregg@epa.gov]; Kemker, Carol[Kemker.Carol@epa.gov]
From: Gillam, Rick
Sent: Thur 5/25/2017 7:10:17 PM
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Hi Tom,

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Sent: Friday, May 12, 2017 1:44 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>

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Cc: Willets, William <william.willets@ncdenr.gov>
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2) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

3) Intermittent Emission Sources

- Duke-Marshall's two emergency generators, emergency water pump, and emergency air compressor were considered as intermittent emission sources based on their frequency of operation and magnitude of SO_2 emissions. The magnitude of their operation during the years 2013-2015 were provided in Table 2.

- *The basis for the reported emissions in Table 2 should be provided (e.g., routine maintenance/testing operations). The frequency and duration of routine operational testing of each unit should be provided to support their classification as intermittent emission units.

4) Receptor Grids

- *To ensure identification of the controlling concentration, the maximum concentration and all concentrations challenging the maximum concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *The reason the 2013-2015 NCDAQ emission inventory was used in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

6) Model Results

- *The location of the modeled design value concentration should be provided to ensure it was in a grid of 100-m resolution.

Duke Energy Allen Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Allen Steam Station was not performed. The determination was made based on the qualitative review of the aerial satellite image provided in Figure 3.

- *Although the determination of rural mode for the Allen facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Receptor Grids

- *The controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

3) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *Although the provided qualitative assessment results confirmed the assumption that Resolute Paper's impacts would be less than those from Duke Marshall, Resolute Paper has SO_2 emissions of over 2,000 TPY resulting in a Q/D of 66. Based on this information, Resolute Paper should have been included in the cumulative assessment to characterize the background SO_2 conditions about Duke Allen Steam Station.

- *Use of the 20D procedure, as indicated in Table 3, identifies the inclusion of the Resolute Paper facility in the cumulative impact modeling. Note that the emissions from sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The reason and appropriateness of the 2013-2015 NCDAQ's emission inventory use in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

- *Although actual hourly emissions from CEMS on the Duke Marshall facility were used in the cumulative modeling, the emission rates for other nearby sources (e.g., Resolute Paper) included in the modeling would be based only on the maximum annual emissions for the 2013-2015 period. Because state/county emission inventories generally only contain annual allowable emission rates, the basis and appropriateness for the modeled hourly emission rates and stack parameters for these emission sources should be provided and discussed.

<u>Duke Energy Mayo Electric Generating Plant</u>

1) Model Selection

- *The AERMAP version number was indicated to be 11130. Because the correct number is 11103, confirmation is needed that the correct model version was used.

2) Meteorological Data

- *The surface and upper air NWS stations that were considered for the Duke-Mayo impact assessment should be provided along with the specific reason(s) the Danville Regional Airport and Greensboro upper air station were selected.

- *The surface moisture was characterized as average based the comparison of monthly

precipitation totals for the 2013-2015 data period to the 30-year data record. The specific precipitation information should be provided (e.g., table containing these values for comparison) to support/document this determination.

3) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Mayo Electric Generating Plant was not performed. The determination was made based on the qualitative review of the available satellite imagery provided Figure 2.

- *Although the determination of rural mode for the Mayo facility may be appropriate, a quantitative land use characterization should be provided for documentation.

4) Receptor Grids

- *The controlling concentration was indicated to have been located within 100-meter spacing (i.e., within 3 km). To ensure this value is the controlling concentration, confirmation is needed that all concentrations challenging the controlling concentration (e.g., within 10%) were also modeled in grids of 100-m resolution.

5) Facility Layout.

- *Confirmation is needed that the identified boundary in Figure 3 is actually a fence line, or property line with barriers to public access so it can be considered non-ambient air (i.e., area not included in the impact assessment). Non-ambient air must be separated from public access by some form of barrier.

6) Intermittent Emission Sources

- The exclusion of the emergency generator and Quench pump for the impact assessment was based on the Table 2 estimated/calculated maximum emission rates. The bases for these calculations was indicated to be NC DAQ IC Spreadsheets using 0.0015% ULSD.

- Table 2 maximum SO_2 hourly emission rate and maximum annual emissions would indicate annual operations of 7.5 hours for the emergency generator and 40 hours for the emergency quench pump.

- *Exclusion of these sources should be based on their past operation and emissions/fuel

used during the 2013-2015 modeled period. The actual hours of operation and emission rates during this period should be provided to document and support their exclusion as intermittent sources.

7) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

8) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.).

Duke Energy Belew Creek Generating Station

1) Rural/Urban Project Area Determination

- *The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. The determination was indicated to be bases on this type of assessment. Documentation of this quantitative assessment is needed to support the rural determination (e.g., figure(s) providing the land use characterizations).

2) Bowen Ratio Moisture Determination

- *The percentile labels in Table 4 (Greensboro 70th and 30th Percentile of Precipitation) appear to have been reversed (i.e., 70th percentile should have 70 percent of the observations less than or equal to the value while the 30 percentile value should have 30 percent of the observations equal to or less than the value).

- *Table 5 appears to have an incorrect moisture determined for March 2014. It appears that this year/period was "WET".

- *The effect of the above apparent discrepancies on the provided impact assessments

should be addressed.

3) Receptor Grids

- *Confirmation is needed that controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) were modeled in grids of 100-m resolution.

4) Modeled Emissions

- *Table 6 provides the Belews Creek boiler emissions. These emissions are only provided in TPY for the years 2013-2015. Section 11.3 indicated prior to 2015 the sulfur content for the Auxiliary Boilers (ES-3 and ES-4) was 0.05% sulfur. The reason 0.5% sulfur (table footnote) was used for the annual TPY provided in Table 6 should be provided.

- *Although the maximum hourly SO_2 emissions for the six emergency engines provided in Table 7 appears small, they should be compared to the maximum hourly emissions from the boilers to determine if the routine maintenance operation of these engines could affect the annual distribution of the daily maximum 1-hour average concentrations. Each engine is indicated to be permitted for up to 100 hours of routine maintenance operation per year. Their actual operational characteristics for routine maintenance operation (e.g., separate operation of each engine less than one hour per week) during the modeled period should be provided to support treating them as intermittent sources for this modeling assessment.

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

- *Because of ultra-low sulfur fuel oil was indicated to have been used for the Auxiliary Boilers in 2015, the maximum hourly SO_2 emissions were 0.57 lbs./hr. For the other years, the maximum hourly emission rate was indicated to be 176 lbs/hr using 0.05% sulfur fuel oil. An explanation is needed because Table 6 indicates 0.5% sulfur oil was used.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the

appropriateness of treating the Auxiliary Boilers as intermittent sources.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

- *Although appearing appropriate, the basis for using target values of 1 TPY (Actual Emissions) within 25 km and 50 TPY (Actual Emissions) between 25 km to 50 km to include sources was not provided or explained. Nether was the use of the "significant concentration gradient" procedure. The bases for both these procedures should be provided and explained.

- *Considering most State/Local inventories of emission sources contain only allowable emissions, the procedure/process used to obtain applicable actual emissions (e.g., annual and 1-hour values) for 2013-2015 modeled period, used in both the screening of the Table 9 nearby sources and subsequent impact modeling (i.e., Ingredion Incorporated and Hanes Dye & Finishing Company), should be provided. [Note: The 20D procedure was developed/defined considering facility's total annual allowable emissions in TPY.]

- *Impact modeling was used to eliminate Ingredion Incorporated and Hanes Dye & Finishing Company from the cumulative impact assessment. Specific modeling information (e.g., emission rates, exit parameters, etc.) should be provided as well as the modeling results. The resulting isopleth maps and concentration gradient analyses used in this assessment should be provided. The maximum, not the 4th highest, modeled concentrations should be used in these analyses.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

o The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

- *The screening procedures for the removal of nearby sources from the cumulative impact modeling should consider the magnitude of each source's impact within Belew's SIA and not

just at the Belew facility location. This analysis should consider the facility's maximum impacts rather than maximum in the form of each standard (e.g., 4th highest).

- It appears that actual emissions were used for most or all nearby sources.

- *The 20D procedure is indicated in Table 9 and appears to have been used to further screen emission sources. Note that the Q value should be the maximum allowable annual emissions in TPY. Actual emissions are not appropriate for the 20D procedure. The annual allowable emissions from all sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The isopleth map showing the concentration gradient was not provided and explained. The location of the Table 9 sources in Figure 11 do not reflect the distances provided in the table.

- *The significant concentration gradient (SCG) in the vicinity of the Belews Creek Generating Station was used to determine the other SO_2 emission sources to include in the air quality impact assessment. The specific target values and procedures used in this determination the SCGs should be provided.

- *The significant impact levels (SIL) and 20D procedure have also been used in the identification of other emission facilities to include in a cumulative impact assessment. Given the sometimes conflicting results using these procedures, the criteria used in this determination should be provided.

Please let me know if you have any questions or would like to discuss any item.

Thanks…sjk

Stanley Krivo, CCM, QEP

U.S. Environmental Protection Agency

Atlanta Federal Center

61 Forsyth Street, SW

Atlanta, GA 30303-8960

Phone: 404/562-9123

Fax: 404/562-9019

To: Glass, John[glassjp@dhec.sc.gov]
From: Gillam, Rick
Sent: Wed 5/10/2017 11:25:29 AM
Subject: RE: SCE&G Wateree and IP Eastover 1-hr SO2 Modeling

Hi John,

Thanks for providing the update. Unfortunately, our email system blocks all *.zip files and so the attachment did not come through. Please resend the document by just changing the extension to something else, like .piz or pretty much anything except .zip or .exe.

I hope you enjoy your day off.

-Rick

From: Glass, John [mailto:glassjp@dhec.sc.gov]
Sent: Tuesday, May 9, 2017 3:59 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Porter, Henry <porterhj@dhec.sc.gov>; Smutz, Stephen <smutzsw@dhec.sc.gov>; Howard, Chris <Howard.Chris@epa.gov>
Subject: SCE&G Wateree and IP Eastover 1-hr SO2 Modeling

Rick,

Attached are the updated modeling files for the Wateree and IP Eastover facilities. Tomorrow is a state holiday, so I will send the formal letter and files on Thursday. Please let me know if you have any questions.

Thanks,

John

John P. Glass, Jr.

Air Modeling Section Manager
Bureau of Air Quality
S.C. Dept. of Health & Environmental Control
Office: (803)898-4074
Connect: www.scdhec.gov Facebook Twitter

To: Howard, Chris[Howard.Chris@epa.gov]; Walther, Katherine[Walther.Katherine@epa.gov]; Rinck, Todd[Rinck.Todd@epa.gov]; Krivo.stanley@epa.gov[Krivo.stanley@epa.gov]
From: Gillam, Rick
Sent: Thur 6/8/2017 8:20:52 PM
Subject: FW: Responses to Comments - SO2 Data Requirement Rule Modeling
SO2 DRR response to comments support files.piz

In case something would come up regarding NC SO2 issues while I am out, here are the responses that Tom Anderson provided recently. I'm thinking it can probably wait until I return, but just in case…

See you in a couple weeks.

Thanks,

Rick

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Thursday, June 1, 2017 7:14 AM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

10-4. See if this one goes through. If it doesn't I can load it to our ftp server.

TA

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Wednesday, May 31, 2017 3:25 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

Hi Tom,

Thanks for the responses. Unfortunately, for security reasons our email system stripped your .zip file and it was not delivered. Please rename to an extension other than .zip or .exe and it should come through fine.

Thanks,

-Rick

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Wednesday, May 31, 2017 3:15 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Michael Pjetraj <michael.pjetraj@ncdenr.gov>; Coughlin, Patrick W <Patrick.Coughlin@duke-energy.com>; Knudsen, Kris W <Kris.Knudsen@duke-energy.com>; Nancy Jones <nancy.jones@ncdenr.gov>; Porter, Matthew k <Matthew.Porter@ncdenr.gov>; Zarnowski, Alexander R <alexander.zarnowski@ncdenr.gov>
Subject: Responses to Comments - SO2 Data Requirement Rule Modeling

Rick,

I have provided responses to your comments, in red text below each of your comments, regarding the SO2 DRR modeling for the Duke Energy facilities. Additionally, I have attached a .zip file that contains several files referenced in my comments.

Please let me know if you have any further questions or require additional information.

Thanks,

Tom A.

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Thursday, May 25, 2017 3:10 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Cc: Rinck, Todd <Rinck.Todd@epa.gov>; Worley, Gregg <Worley.Gregg@epa.gov>; Kemker, Carol <Kemker.Carol@epa.gov>
Subject: RE: Review Comments - SO2 Data Requirement Rule Modeling Comments

Hi Tom,

Pursuant to a phone conversation between Mike Abraczinskas and Carol Kemker, I have gone through the comments Stan sent you previously and pared them down to the most significant issues where we need further information to complete our analysis. The revised list is provided below. Please give me a call to discuss when you have a chance.

Thanks,

Rick

Duke Energy Marshall Steam Station

1) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to

replace/substitute missing actual emissions.

SO2 emissions were obtained from Duke Energy staff.

Duke Response: The SO2 emissions data were obtained from the data reported by our CEMS, using the same data base that is reported to the EPA Clean Air Markets Division (CAMD). All substituted values are as reported to CAMD in accordance with Part 75 requirements. SO2 data availability was 98.9% or greater for all stacks during this period.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

Hourly varying stack parameters were obtained from Duke Energy staff.

Duke Response: The hourly stack exit velocity was calculated using Part 75 CEMS data. CEMS monitor data availability for flow measurement was 99.5% or greater for all stacks during this period. The hourly exit velocity was calculated from the hourly flow and stack temperature data using the following equation.

V msec=A STD ft3hr x hr60 min x min60 sec x B+480528 x π x D22x 0.3048 m3ft3

Where:

V is the stack exist velocity in meter/sec

A is the Part 75 stack flow rate in standard cubic feet per hour

B is the stack gas temperature in degree F

D is the stack diameter in feet

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 8, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Allen Steam Station

1) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 9, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Mayo Electric Generating Plant

1) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

The text in Section 7, page 4, of the modeling report that indicates that the two boilers vent to individual stacks is an error. The statement was simply an inadvertent carryover from another report that was used as a template and the two boilers do indeed vent from only a single stack.

2) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM

data for period 2013-2015, etc.). Additionally, the hourly emissions files used in the modeling should be provided for review.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 6, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

The hourly emission rates for both the Duke – Roxboro units and the CPI units were obtained from actual CEM data for the period 2013-2015 and were obtained from EPA's Clean Air Markets Database (https://ampd.epa.gov/ampd/).

The hourly emissions file used in the modeling is attached to this message (filename: mayo_hourly emissions SO2.txt)

Duke Energy Belew Creek Generating Station

1) Modeled Emissions

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

Duke Response: Use of "before and after" temperatures might be appropriate for short periods of missing data where the operating conditions are similar during the missing period, but for longer periods of missing data, an average temperature is a more appropriate representation since the operating conditions (minimum to maximum generating load and heat input) may vary significantly over time . Also, due to the continuous operation of the wet scrubbers, there is a relatively small range of temperature variation (average 121 °F with standard deviation of 3.5 °F) and there should be little impact on the modeling whether using the average temperature or a temperature based on the period before and after.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum

guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

Duke Response: The two auxiliary boilers combust fuel oil that is exclusively the ULSD fuel oil supply that is commercially available in the region. The maximum emissions rate for these boilers is 0.27 lb/hr each. The emissions rate for the Belews Creek Units 1 and 2 EGU boilers operating at maximum averages approximately 1,200 lb/hr, with a typical range (95% of data) between 600 to 2000 lb/hr.

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

Duke Response: A file including all SO2 sources within 50 km is attached to this message (filename: BCInventory010517.xlsx). Section 13, pages 22-25, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

Attached are two files to support the exclusion of the boilers from the modeling – 1) a 2015 Permit Review in which removal of the boilers is discussed and, 2) the latest 2017 Compliance Inspection Report that shows all permitted sources at the facility.

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

•□□□□□□□□ The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

Duke Response: The modeled emissions rate was estimated by dividing the reported annual emissions over the period from 2013 to 2015 by 8760 hour/year. The inventory did not provide information on the hours of operation, therefore 8,760 hours of operation was used to estimate the lbs/hr emissions rate used in the modeling .

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Friday, May 12, 2017 1:44 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

FYI.

From: Anderson, Tom
Sent: Thursday, April 27, 2017 11:53 AM
To: Abraczinskas, Michael <michael.abraczinskas@ncdenr.gov>; Pjetraj, Michael <michael.pjetraj@ncdenr.gov>; Strait, Randy P <randy.strait@ncdenr.gov>; Masemore, Sushma <sushma.masemore@ncdenr.gov>
Cc: Willets, William <william.willets@ncdenr.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

Shall we convene to discuss how we should respond to Stan's comments? None of his comments are likely to require any re-modeling nor make any difference at all in any modeled impacts if we do.

TA

From: Krivo, Stan [mailto:Krivo.Stanley@epa.gov]
Sent: Thursday, April 27, 2017 11:34 AM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: Review Comments - SO2 Data Requirement Rule Modeling Comments

Tom,

As I indicated in our telephone call today, the follow are my observations and review comments on the air quality modeling provided four SO_2 Data Requirement Rule (DRR) sources (i.e., area modeling assessments) for the North Carolina 3rd round of SO_2 attainment designations. Only the comments preceded by an asterisk request additional information, clarification, and/or analyses.

Duke Energy Marshall Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Marshall Steam Station appear not to have been performed. The determination was apparently made based on the qualitative review of the satellite imagery of land use types provided Figure 3.

- *Although the determination of rural mode for the Marshall facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to

replace/substitute missing actual values.

3) Intermittent Emission Sources

- Duke-Marshall's two emergency generators, emergency water pump, and emergency air compressor were considered as intermittent emission sources based on their frequency of operation and magnitude of SO_2 emissions. The magnitude of their operation during the years 2013-2015 were provided in Table 2.

- *The basis for the reported emissions in Table 2 should be provided (e.g., routine maintenance/testing operations). The frequency and duration of routine operational testing of each unit should be provided to support their classification as intermittent emission units.

4) Receptor Grids

- *To ensure identification of the controlling concentration, the maximum concentration and all concentrations challenging the maximum concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *The reason the 2013-2015 NCDAQ emission inventory was used in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

6) Model Results

- *The location of the modeled design value concentration should be provided to ensure it was in a grid of 100-m resolution.

<u>Duke Energy Allen Steam Station</u>

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Allen Steam Station was not performed. The determination was made based on the qualitative review of the aerial satellite image provided in Figure 3.

- *Although the determination of rural mode for the Allen facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Receptor Grids

- *The controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

3) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *Although the provided qualitative assessment results confirmed the assumption that Resolute Paper's impacts would be less than those from Duke Marshall, Resolute Paper has SO_2 emissions of over 2,000 TPY resulting in a Q/D of 66. Based on this information, Resolute Paper should have been included in the cumulative assessment to characterize the background SO_2 conditions about Duke Allen Steam Station.

- *Use of the 20D procedure, as indicated in Table 3, identifies the inclusion of the Resolute Paper facility in the cumulative impact modeling. Note that the emissions from sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The reason and appropriateness of the 2013-2015 NCDAQ's emission inventory use in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

- *Although actual hourly emissions from CEMS on the Duke Marshall facility were used in the cumulative modeling, the emission rates for other nearby sources (e.g., Resolute Paper) included in the modeling would be based only on the maximum annual emissions for the 2013-2015 period. Because state/county emission inventories generally only contain annual allowable emission rates, the basis and appropriateness for the modeled hourly emission rates and stack parameters for these emission sources should be provided and discussed.

Duke Energy Mayo Electric Generating Plant

1) Model Selection

- *The AERMAP version number was indicated to be 11130. Because the correct number is 11103, confirmation is needed that the correct model version was used.

2) Meteorological Data

- *The surface and upper air NWS stations that were considered for the Duke-Mayo impact assessment should be provided along with the specific reason(s) the Danville Regional Airport and Greensboro upper air station were selected.

- *The surface moisture was characterized as average based the comparison of monthly precipitation totals for the 2013-2015 data period to the 30-year data record. The specific precipitation information should be provided (e.g., table containing these values for comparison) to support/document this determination.

3) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Mayo Electric Generating Plant was not performed. The determination was made based on the qualitative review of the available satellite imagery provided Figure 2.

- *Although the determination of rural mode for the Mayo facility may be appropriate, a quantitative land use characterization should be provided for documentation.

4) Receptor Grids

- *The controlling concentration was indicated to have been located within 100-meter spacing (i.e., within 3 km). To ensure this value is the controlling concentration, confirmation is needed that all concentrations challenging the controlling concentration (e.g., within 10%) were also modeled in grids of 100-m resolution.

5) Facility Layout.

- *Confirmation is needed that the identified boundary in Figure 3 is actually a fence line, or property line with barriers to public access so it can be considered non-ambient air (i.e., area not included in the impact assessment). Non-ambient air must be separated from public access by some form of barrier.

6) Intermittent Emission Sources

- The exclusion of the emergency generator and Quench pump for the impact assessment was based on the Table 2 estimated/calculated maximum emission rates. The bases for these calculations was indicated to be NC DAQ IC Spreadsheets using 0.0015% ULSD.

- Table 2 maximum SO_2 hourly emission rate and maximum annual emissions would indicate annual operations of 7.5 hours for the emergency generator and 40 hours for the emergency quench pump.

- *Exclusion of these sources should be based on their past operation and emissions/fuel used during the 2013-2015 modeled period. The actual hours of operation and emission rates during this period should be provided to document and support their exclusion as intermittent sources.

7) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

8) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.).

<u>Duke Energy Belew Creek Generating Station</u>

1) Rural/Urban Project Area Determination

- *The determination of the appropriate dispersion mode to use in the air quality modeling

should be based of the characterization of the land use types within 3 km of the project location. The determination was indicated to be bases on this type of assessment. Documentation of this quantitative assessment is needed to support the rural determination (e.g., figure(s) providing the land use characterizations).

2) Bowen Ratio Moisture Determination

- *The percentile labels in Table 4 (Greensboro 70th and 30th Percentile of Precipitation) appear to have been reversed (i.e., 70th percentile should have 70 percent of the observations less than or equal to the value while the 30 percentile value should have 30 percent of the observations equal to or less than the value).

- *Table 5 appears to have an incorrect moisture determined for March 2014. It appears that this year/period was "WET".

- *The effect of the above apparent discrepancies on the provided impact assessments should be addressed.

3) Receptor Grids

- *Confirmation is needed that controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) were modeled in grids of 100-m resolution.

4) Modeled Emissions

- *Table 6 provides the Belews Creek boiler emissions. These emissions are only provided in TPY for the years 2013-2015. Section 11.3 indicated prior to 2015 the sulfur content for the Auxiliary Boilers (ES-3 and ES-4) was 0.05% sulfur. The reason 0.5% sulfur (table footnote) was used for the annual TPY provided in Table 6 should be provided.

- *Although the maximum hourly SO_2 emissions for the six emergency engines provided in Table 7 appears small, they should be compared to the maximum hourly emissions from the boilers to determine if the routine maintenance operation of these engines could affect the annual distribution of the daily maximum 1-hour average concentrations. Each engine is indicated to be permitted for up to 100 hours of routine maintenance operation per year. Their actual operational characteristics for routine maintenance operation (e.g., separate operation of each engine less than one hour per week) during the modeled period should be provided to support treating them as intermittent sources for this modeling assessment.

- * Missing CEMS stack temperatures were replaced with an average stack temperature

determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

- *Because of ultra-low sulfur fuel oil was indicated to have been used for the Auxiliary Boilers in 2015, the maximum hourly SO_2 emissions were 0.57 lbs./hr. For the other years, the maximum hourly emission rate was indicated to be 176 lbs/hr using 0.05% sulfur fuel oil. An explanation is needed because Table 6 indicates 0.5% sulfur oil was used.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

- *Although appearing appropriate, the basis for using target values of 1 TPY (Actual Emissions) within 25 km and 50 TPY (Actual Emissions) between 25 km to 50 km to include sources was not provided or explained. Nether was the use of the "significant concentration gradient" procedure. The bases for both these procedures should be provided and explained.

- *Considering most State/Local inventories of emission sources contain only allowable emissions, the procedure/process used to obtain applicable actual emissions (e.g., annual and 1-hour values) for 2013-2015 modeled period, used in both the screening of the Table 9 nearby sources and subsequent impact modeling (i.e., Ingredion Incorporated and Hanes Dye & Finishing Company), should be provided. [Note: The 20D procedure was developed/defined considering facility's total annual allowable emissions in TPY.]

- *Impact modeling was used to eliminate Ingredion Incorporated and Hanes Dye & Finishing Company from the cumulative impact assessment. Specific modeling information (e.g., emission rates, exit parameters, etc.) should be provided as well as the modeling results. The resulting isopleth maps and concentration gradient analyses used in this assessment should be provided. The maximum, not the 4th highest, modeled concentrations should be used in these analyses.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

o The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

- *The screening procedures for the removal of nearby sources from the cumulative impact modeling should consider the magnitude of each source's impact within Belew's SIA and not just at the Belew facility location. This analysis should consider the facility's maximum impacts rather than maximum in the form of each standard (e.g., 4th highest).

- It appears that actual emissions were used for most or all nearby sources.

- *The 20D procedure is indicated in Table 9 and appears to have been used to further screen emission sources. Note that the Q value should be the maximum allowable annual emissions in TPY. Actual emissions are not appropriate for the 20D procedure. The annual allowable emissions from all sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The isopleth map showing the concentration gradient was not provided and explained. The location of the Table 9 sources in Figure 11 do not reflect the distances provided in the table.

- *The significant concentration gradient (SCG) in the vicinity of the Belews Creek Generating Station was used to determine the other SO_2 emission sources to include in the air quality impact assessment. The specific target values and procedures used in this determination the SCGs should be provided.

- *The significant impact levels (SIL) and 20D procedure have also been used in the identification of other emission facilities to include in a cumulative impact assessment. Given the sometimes conflicting results using these procedures, the criteria used in this determination should be provided.

Please let me know if you have any questions or would like to discuss any item.

Thanks…sjk

Stanley Krivo, CCM, QEP

U.S. Environmental Protection Agency

Atlanta Federal Center

61 Forsyth Street, SW

Atlanta, GA 30303-8960

Phone: 404/562-9123

Fax: 404/562-9019

To: Akers, Brad[Akers.Brad@epa.gov]
From: Gillam, Rick
Sent: Fri 5/12/2017 1:23:04 PM
Subject: FW: SC DRR Update
SC DRR update 5-11-2017.pdf
WATEOModelingReportAndFiles_Rev4a_20170509.piz
2017-05-11_1900-0013.6tv.pdf

FYI

From: Gillam, Rick
Sent: Friday, May 12, 2017 7:31 AM
To: Benjamin, Lynorae <benjamin.lynorae@epa.gov>; Bradley, Twunjala <Bradley.Twunjala@epa.gov>; Scofield, Steven <Scofield.Steve@epa.gov>
Cc: Rinck, Todd <Rinck.Todd@epa.gov>; Worley, Gregg <Worley.Gregg@epa.gov>; Howard, Chris <Howard.Chris@epa.gov>
Subject: FW: SC DRR Update

FYI – see the attached for the revised modeling of SCE&G Wateree and IP Eastover Mill. We will review this as quickly as possible and let you know our findings.

-Rick

From: Glass, John [mailto:glassjp@dhec.sc.gov]
Sent: Thursday, May 11, 2017 4:31 PM
To: Heard, Anne <Heard.Anne@epa.gov>
Cc: Banister, Beverly <Banister.Beverly@epa.gov>; Davis, Scott <Davis.ScottR@epa.gov>; Gillam, Rick <Gillam.Rick@epa.gov>; thompsrb@dhec.sc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Mack, Robin <mackrs@dhec.sc.gov>; Brown, Robbie <brownrj@dhec.sc.gov>; Wall, Mary Peyton <wallmp@dhec.sc.gov>; Smutz, Stephen <smutzsw@dhec.sc.gov>
Subject: SC DRR Update

Dear Ms. Heard,

Attached please find an update to the information SC DHEC provided on January 13, 2017 to address the Data Requirements Rule for the state of SC. The attached modeling

and information is in response to EPA's decision not to approve the original modeling submitted for the SCE&G Wateree and IP Eastover facilities that used a non-default beta AERMOD option. Please note that the attached file with the .piz extension will need to be renamed with a .zip extension and unzipped before it can be read.

Please let us know if you have any questions or need additional information.

Regards,

John P. Glass, Jr.

Air Modeling Section Manager
Bureau of Air Quality
S.C. Dept. of Health & Environmental Control
Office: (803)898-4074
Connect: www.scdhec.gov Facebook Twitter

S.C. Department of Health and Environmental Control

Bureau of Air Quality
Title V Operating Permit

SCE&G Wateree Station
Highway 601
Eastover, South Carolina 29044
Richland County
(Permit Updated 05/11/17)

In accordance with the provisions of the *Pollution Control Act*, Sections 48-1-50(5) and 48-1-110(a), the 1976 *Code of Laws of South Carolina*, as amended, and *South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards,* the Bureau of Air Quality authorizes the operation of this facility and the equipment specified herein in accordance with valid construction permits, and the plans, specifications, and other information submitted in the Title V permit application received on March 31, 2011, as amended.

The operation of this facility is subject to and conditioned upon the terms, limitations, standards, and schedules contained herein or as specified by this permit and its accompanying attachments.

Permit Number: TV-1900-0013

Issue Date:	**September 16, 2014**	**Effective Date:**	**January 1, 2015**
Expiration Date:	**December 31, 2019**	**Renewal Due Date:**	**June 30, 2019**

Steve McCaslin, P. E., Director
Engineering Services Division
Bureau of Air Quality

RECORD OF REVISIONS		
Date	**Type**	**Description of Change**
7/28/15	MM	Changed equipment description for equipment ID FA-1 in table B.6 Equipment For Emission Unit ID 05 – Ash Handling Operations to list the new fly ash vacuum system. Clarified testing portion of Conditions C.29 and C.30.
9/15/15	MM	Added limited use boiler language to Section G. NESHAP-Conditions and updated Condition C.16.
12/1/15	AA	Added NESHAP 5D applicability condition to Section G. NESHAP-Conditions which was inadvertently removed when processing previous MM and added NESHAP 5D to Section F. NESHAP Periodic Reporting Schedule Summary table.
2/29/16	MM	The new fly ash vacuum system, adding fly ash silo, and adding fly ash truck loading chute resulted in changes to equipment descriptions in table B.6 Equipment For Emission Unit ID 05 – Ash Handling Operations and changes to control device descriptions in table B.7 Control Device(s) For Emission Unit ID 05 – Ash Handling Operations. Also, all applicable conditions were updated to include the new equipment and controls.
1/13/17	MM	Removed "voluntary" from control equipment description for CD-FGD in Parts B.2 and B.4. Removed the startup and shutdown exception form the Standard 1 opacity condition C.12. Changed maximum fuel oil sulfur content from 0.25% to 0.0015% in Condition C.19. Added Condition C.34 containing the Data Requirements Rule (40 CFR 51).
5/11/17	MM	Changed modeled emission rate for Stack UB12 in Condition C.34.

AA Administrative Amendment
MM Minor Modification
SM Significant Modification

A. EMISSION UNIT DESCRIPTION

Emission Unit ID	Emission Unit Description
01	Boiler No. 1
02	Boiler No. 2
03	VOID ~~Emergency generator No. 1~~ (this has been moved to the insignificant activities list)
04	Auxiliary Boiler No. 1
05	Ash Handling Operations (bulldozers, front-end loaders, dump trucks, landfill, and silos)
06	Coal Handling Operations (bulldozers, conveyors, loadout, dump trucks, and reclaim)
07	Carbon Burnout Plant
08	Limestone and Gypsum Handling Operations (front-end loaders, dump trucks, storage piles, reclaim, conveyors, landfill, and silo)

B EQUIPMENT AND CONTROL DEVICE(S)

B.1 EQUIPMENT FOR EMISSION UNIT 01 – Boiler No. 1

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
UB1	3,577.5 million Btu/hr nominally rated Coal/Synfuel/No. 2 Fuel Oil Wall Fired Boiler	1968	CD-BH1 CD-SCR1 CD-FGD	UB-1, UB-12

B.2 CONTROL DEVICE(S) FOR EMISSION UNIT 01 – Boiler No. 1

Control Device ID	Control Device Description	Installation/ Modification Date	Pollutant(s) Controlled
CD-BH1	Baghouse	2002	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-SCR1(1)	Selective Catalytic Reduction	2003	NO_x
CD-FGD(2)	Flue Gas Desulfurization	2008	SO_2, PM (condensable)

(1) The selective catalytic reduction control device (CD-SCR1) controls NO_x emissions from Boiler No. 1 and is a voluntary control device.

(2) The flue gas desulfurization control device (CD-FGD) controls SO_2 emissions from both Boiler No. 1 and Boiler No. 2

B.3 EQUIPMENT FOR EMISSION UNIT 02 – Boiler No. 2

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
UB2	3,577.5 million Btu/hr nominally rated Coal/Synfuel/No. 2 Fuel Oil Wall Fired Boiler	1968	CD-BH2 CD-SCR2 CD-FGD	UB-2, UB-12

B.4 CONTROL DEVICE(S) FOR EMISSION UNIT 02 – Boiler No. 2

Control Device ID	Control Device Description	Installation/ Modification Date	Pollutant(s) Controlled
CD-BH2	Baghouse	2002	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-SCR2(1)	Selective Catalytic Reduction	2003	NO_x
CD-FGD(2)	Flue Gas Desulfurization	2008	SO_2, PM (condensable)

(1) The selective catalytic reduction control device (CD-SCR2) controls NO_x emissions from Boiler No. 2 and is a voluntary control device.
(2) The flue gas desulfurization control device (CD-FGD) controls SO_2 emissions from both Boiler No. 1 and Boiler No. 2.

B.5 EQUIPMENT FOR EMISSION UNIT 04 – Auxiliary Boiler

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
AXB1	217.9 million Btu/hr nominally rated No. 2 Fuel Oil Fired Auxiliary Boiler	1998	None	AB-1

B.6 EQUIPMENT FOR EMISSION UNIT 05 – Ash Handling Operations

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
AH-1	Ash Transfer: Bottom Ash Pond Loadout to Haul Trucks	1968	None	AH-1
AH-2	Ash Transfer: Dump Truck Traffic to Ash Pond (Paved and Unpaved)	1968	None	AH-2
AH-3	Bulldozer Operations on Ash Pond	1968	None	AH-3

B.6 EQUIPMENT FOR EMISSION UNIT 05 – Ash Handling Operations

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
AH-4	Wind Erosion from Bottom Ash Pond Excavation	1968	None	AH-4
AH-5	Flyash Transfer: Dump Truck Traffic from Unit 1 Silo to Landfill (Paved and Unpaved)	1968	None	AH-5
AH-6	Flyash Transfer: Flyash Haul Truck Offload onto Landfill	1968	None	AH-6
FA-1	Fly Ash Transfer: Baghouse 1 to Ash Storage Silo #1 with vacuum transfer system #1 (filter/separator – mechanical exhausters)	1968/2011/2015	CD-BV1 CD-FS-1	FA-1 FS-1
FA-2	Fly Ash Transfer: Baghouse 2 to Ash Storage Silo #2A with vacuum transfer system #2 (filter/separator – mechanical exhausters)	1968/2002/2016	CD-VF9 CD-FS-2	FA-2 FS-2
FA-3	Fly Ash Transfer: Baghouse 2 to Ash Storage Silo #2B with vacuum transfer system #2 (filter/separator – mechanical exhausters)	1968/2002/2016	CD-VF10 CD-FS-2	FA-3 FS-2
FA-4	Fly Ash Transfer: Feed Silo (CBO)	1998	CD-VF1	FA-4
FA-5	Fly Ash Transfer: Recycle Silo (CBO)	1998	CD-VF2	FA-5
FA-6	Fly Ash Transfer: Urquhart Silo	1998	CD-VF3	FA-6
FA-7	Fly Ash Transfer: McMeekin Silo	1998	CD-VF4	FA-7
FA-8	Fly Ash Transfer: Unit 1 Silo to Dump Truck	1968/2011	CD-WC	FA-8
FA-9	Fly Ash Transfer: Loadout Silos 1 and 2	1998	CD-VF6	FA-9
FA-10	Fly Ash Transfer: Loadout Silos 3 and 4	1998	CD-VF7	FA-10
FA-11	Fly Ash Transfer: Fly Ash Dome	1998	CD-VF5	FA-11
FA-12	Fly Ash Silo #2C with dust collector	2016	None	FA-12
FA-13	Fly Ash Truck Loading Chute with dust collector	2016	None	FA-13

B.7 CONTROL DEVICE(S) FOR EMISSION UNIT 05 – Ash Handling Operations

Control Device ID	Control Device Description	Installation/ Modification Date	Pollutant(s) Controlled
CD-BV1	Vent Filter	2015	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-FS1	Filter Separator	2016	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-FS2	Filter Separator	2016	PM, PM_{10}, $PM_{2.5}$ (filterable)

B.7 CONTROL DEVICE(S) FOR EMISSION UNIT 05 – Ash Handling Operations

Control Device ID	Control Device Description	Installation/ Modification Date	Pollutant(s) Controlled
CD-VF9	Vent Filter	2002	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF10	Vent Filter	2002	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF1	Vent Filter	1998	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF2	Vent Filter	1998	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF3	Vent Filter	1998	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF4	Vent Filter	1998	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-WC	Wet Ash Conditioner	2011	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF6	Vent Filter	1998	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF7	Vent Filter	1998	PM, PM_{10}, $PM_{2.5}$ (filterable)
CD-VF5	Vent Filter	1998	PM, PM_{10}, $PM_{2.5}$ (filterable)

B.8 EQUIPMENT FOR EMISSION UNIT 06 – Coal Handling Operations

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
CH-1	Coal/Synfuel Unloading, Conveying and Crushing via track hoppers, conveyors (C-1,1a, C-2, 2a) and crushers	1968	None	CH-1
CH-4	Coal/Synfuel Tripper System Transfer: transfer from C-2 to C-3 via Trippers and from C-2a to C-3a via Trippers	1968	None	CH-4
CH-5	Coal/Synfuel Transfer: transfer from C-3 Trippers to Short-term Storage Pile and from C-3a Trippers to Short-term Storage Pile	1968	None	CH-5
RC	Underground Reclaim System: Conveyors (C-4, 4a, C-5, 5a, C-6, 6a), Emergency Reclaim 116/121 Feeders, and 5 and 5a Rotary Plows	1968	None	None

B.8 EQUIPMENT FOR EMISSION UNIT 06 – Coal Handling Operations

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
CH-11	Coal/Synfuel Transfer: transfer through tower 2A via conveyors C-7 to C-7c and/or C-9 and conveyors C-7a to C-7b and/or 9a	1968	None	CH-11
CH-13	Coal/Synfuel Transfer: transfer through tower 2 via conveyors C-7c to C-8 and C-7b to C-8a	1968	None	CH-13
CH-14	Coal/Synfuel Transfer: via conveyors C-8 to C-10 and C-8a to C-10a	1968	None	CH-14
CH-15	Coal/Synfuel Transfer: via conveyor C-10 to Unit 1 Bunkers and conveyor C-10a to Unit 1 Bunkers	1968	None	CH-15
CH-16	Coal/Synfuel Transfer: via conveyors C-9 to C-11 and C-9a to C-11a	1968	None	CH-16
CH-17	Coal/Synfuel Transfer: via conveyor C-11 to Unit 2 Bunkers and conveyor C-11a to Unit 2 Bunkers	1968	None	CH-17
CH-18	Bulldozer Operations on Coal Yard	1992	None	CH-18
CH-19	Coal Pile for Coal Storage	1968	None	CH-19
CH-20	Coal/Synfuel Transfer: Coal Storage to Dual Hoppers	2002	None	CH-20
CH-26	Reclaim Hopper transfer to Reclaim Feeder (Underground)	2002	None	None
CH-27	Stacking Tube Feed Conveyor transfer to Reclaim Conveyor (Underground)	2002	None	None
CH-28	Reclaim Conveyor within the Reclaim Tunnel transfer to Conveyor 17 (Underground)	2002	None	None
CH-29	Coal/Synfuel Transfer: conveyor C-17 to Bin and Rail Car Loadout	2002	None	CH-29
CH-30	Coal/Synfuel Transfer: Coal Pile Loadout to Trucks	2002	None	CH-30
CH-31	Coal/Synfuel Truck Traffic – Paved Portion	2002	None	CH-31

B.9 EQUIPMENT FOR EMISSION UNIT 07 – Carbon Burnout Plant

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
CBO	Fly Ash Carbon Burn Out Plant (includes Fluidized Bed Combustor)	1998	CD-BAG1	UB-1,UB-2, UB-12

B.10 CONTROL DEVICE(S) FOR EMISSION UNIT 07 – Carbon Burnout Plant

Control Device ID	Control Device Description	Installation/ Modification Date	Pollutant(s) Controlled
CD-BAG1	Baghouse/Cyclone	1998	PM, PM_{10}, $PM_{2.5}$ (filterable and condensable)

B.11 EQUIPMENT FOR EMISSION UNIT 08 – Limestone and Gypsum Handling Operations

Equipment ID	Equipment Description	Installation/ Modification Date	Control Device ID	Emission Point ID
GH-1	Gypsum Transfer: Gypsum Stackout Conveyor	2010	None	GH-1
GH-2	Gypsum Transfer: Stackout Conveyor to Gypsum Storage Pile	2010	None	GH-2
GH-3	Gypsum Pile (wind erosion)	2010	None	GH-3
GH-4	Gypsum Handling: Gypsum Pile Management	2010	None	GH-4
GH-5	Gypsum Transfer: Gypsum Haul Truck Loadout	2010	None	GH-5
GH-6	Gypsum Transfer: Haul Trucks on Paved Roads	2010	None	GH-6
GH-7	Gypsum Transfer: Gypsum Haul Truck Offload onto Landfill	2010	None	GH-7
GH-8	Bulldozer Loader Operations on New Landfill	2010	None	GH-8
GH-9	New Landfill (wind erosion from landfill)	2010	None	GH-9
LH-1	Limestone Transfer: Load-in from Delivery Trucks	2010	None	LH-1
LH-2	Limestone Pile (wind erosion)	2010	None	LH-2
LH-3	Limestone Transfer: Loader Operations on Storage Pile	2010	None	LH-3
LH-4	Limestone Transfer: Chain Reclaimer to Silo Fill Conveyor	2010	None	LH-4
LH-5	Limestone Transfer: Delivery Trucks on Paved Roads	2010	None	LH-5
LS-A	Limestone Transfer: Silo Fill Conveyor to Day Silo	2010	CD-VF11	LS-A

B.12 CONTROL DEVICE(S) FOR EMISSION UNIT 08 – Limestone and Gypsum Handling Operations

Control Device ID	Control Device Description	Installation/ Modification Date	Pollutant(s) Controlled
CD-VF11	Vent Filter	2010	PM, PM_{10}, $PM_{2.5}$ (filterable)

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
C.1	**Emission Unit ID:** All **Equipment/Control Device ID:** All Equipment capacities provided under the Equipment Description column of the Equipment Tables above are not intended to be permit limits unless otherwise specified within the Table of Conditions for the particular equipment. However, this condition does not exempt the facility from the construction permitting process, from PSD review, nor from any other applicable requirements that must be addressed prior to increasing production rates.
C.2	**Emission Unit ID:** All **Equipment/Control Device ID:** All (S.C. Regulation 61-62.1, Section II.J.1.g) A copy of the Department issued construction and/or operating permit must be kept readily available at the facility at all times. The owner or operator shall maintain such operational records; make reports; install, use, and maintain monitoring equipment or methods; sample and analyze emissions or discharges in accordance with prescribed methods at locations, intervals, and procedures as the Department shall prescribe; and provide such other information as the Department reasonably may require. All records required to demonstrate compliance with the limits established under this permit shall be maintained on site for a period of at least 5 years from the date the record was generated and shall be made available to a Department representative upon request.
C.3	**Emission Unit ID:** All **Equipment ID/Control Device ID:** All **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emi Process Industries, Section X - Non-Enclosed Operations: (a) All non-enclosed operations shall be conducted in such a manner that a minimum of particulate matter becomes airborne. (b) The owner/operator of all such operations shall maintain dust control of the premises and any roadway owned or controlled by the owner/operator by paving, or other suitable measures. Oil treatment is prohibited.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	(c) All crushing, drying, classification and like operations shall employ a suitable control device acceptable to the Department, and shall discharge no more particulate matter than that specified in Section VIII of this Standard. In accordance with S.C. Regulation 61-62.6 - Control of Fugitive Particulate Matter, Section III - Control of Fugitive Particulate Matter Statewide: (a) Emissions of fugitive particulate matter shall be controlled in such a manner and to the degree that it does not create an undesirable level of air pollution. (b) Restrictions and requirements may be contained in operating permits on a case-by-case basis that are deemed appropriate and necessary to control fugitive particulate matter in accordance with reasonably available control technology. (c) No source/plant shall use any method of materials handling which will generate fugitive particulate matter that is not fully described in the permit application. (d) Volatile organic compounds shall not be used for dust control purposes. Oil treatment is also prohibited **State Only:** No **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** The owner/operator shall prepare a plan to minimize fugitive particulate matter emissions. The plan shall, at a minimum: (a) Identify sources that reasonably have the potential to emit fugitive particulate matter. These sources shall include but are not limited to roadways, storage piles, etc. (b) Include steps that the owner/operator takes to minimize fugitive emissions from the identified sources (c) Record episodes of excess fugitive particulate matter emissions (d) Record the corrective actions taken to mitigate emissions during the episode The plan shall be maintained at the facility, kept up-to-date, and made available to the Department upon request. Plan requirements may be modified if future fugitive emission issues arise.
C.4	**Emission Unit ID:** 05, 06, 08 **Equipment ID:** AH-1, AH-2, AH-3, AH-4, AH-5, AH-6, FA-2, FA-3, FA-4, FA-5, FA-6, FA-7, FA-11, FA-12, FA-13, FA-1, FA-8, FA-9, FA-10, CH-1, CH-4, CH-5, CH-11, CH-13, CH-14, CH-15, CH-16, CH-17, CH-18, CH-19, CH-20, CH-29, CH-30, CH-31, GH-1, GH-2, GH-3, GH-4, GH-5, GH-6, GH-7, GH-8, GH-9, LH-1, LH-2, LH-3, LH-4, LH-5, LS-A

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Control Device ID: CD-VF9, CD-FS-2, CD-VF10, CD-VF1, CD-VF2, CD-VF3, CD-VF4, CD-VF5, CD-BV1, CD-FS-1, CD-WC, CD-VF6, CD-VF7, CD-VF11 Visual inspection means a qualitative observation of opacity during daylight hours where the inspector records results in a log, noting color, duration, density (heavy or light), cause, and corrective action taken for any abnormal emissions. The observer does not need to be certified to conduct valid visual inspections. However, at a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, and observer position relative to lighting, wind, and the presence of uncombined water. Logs shall be kept to record all visual inspections, including cause and corrective action taken for any abnormal emissions and visual inspections from date of recording. Fugitive sources may be grouped and treated as a single volume source to the extent they are in the same general proximity and compliance is determined based on the more stringent limit. Records shall identify group make-up. Point sources (both controlled and uncontrolled stacks) shall be observed individually.
C.5	**Emission Unit ID:** 01, 02, 06, 08 **Equipment ID/Control Device ID:** UB1/CD-BH1, UB2/CD-BH2, CH-20, CH-29, CH-30, CH-31, GH-1, GH-2, GH-3, GH-4, GH-5, GH-6, GH-7, GH-8, GH-9, LH-1, LH-2, LH-3, LH-4, LH-5, LSA/CD-VF11 For any source test required under an applicable standard or permit condition, the owner, operator, or representative shall comply with S.C. Regulation 61-62.1, Section IV - Source Tests. Unless approved otherwise by the Department, the owner, operator, or representative shall ensure that source tests are conducted while the source is operating at the maximum expected production rate or other production rate or operating parameter which would result in the highest emissions for the pollutants being tested. Some sources may have to spike fuels or raw materials to avoid being subjected to a more restrictive feed or process rate. Any source test performed at a production rate less than the rated capacity may result in permit limits on emission rates, including limits on production if necessary. The owner or operator shall comply with any limits that result from conducting a source test at less than rated capacity. A copy of the most recent Department issued source test summary letter, whether it imposes a limit or not, shall be maintained with the operating permit, for each source that is required to conduct a source test.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Site-specific test plans and amendments, notifications, and source test reports shall be submitted to the Manager of the Source Evaluation Section, Bureau of Air Quality.
C.6	**Emission Unit ID:** 01, 02, 05, 07, 08 **Equipment ID:** UB1, UB2, FA-1, FA-2, FA-3, FA-4, FA-5, FA-6, FA-7, FA-8, FA-9, FA-10, FA-11, CBO, LS-A **Control Device ID:** CD-BH1, CD-BH2, /CD-SCR1, /CD-SCR2, CD-FGD, CD-BV1, CD-FS-1, CD-VF9, CD-FS-2, CD-VF10,CD-VF1, CD-VF2, /CD-VF3, CD-VF4, /CD-WC, CD-VF6, CD-VF7, CD-VF5, CD-BAG1, CD-VF11 The owner/operator shall inspect, calibrate, adjust, and maintain continuous monitoring systems, monitoring devices, and gauges in accordance with manufacturer's specifications or good engineering practices. The owner or operator shall maintain on file all measurements including continuous monitoring system or monitoring device performance measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required in a permanent form suitable for inspection by Department personnel.
C.7	**Emission Unit ID:** 01, 02, 05, 07, 08 **Equipment ID:** UB1, UB2, FA-1, FA-2, FA-3, FA-4, FA-5, FA-6, FA-7, FA-8, FA-9, FA-10, FA-11, CBO, LS-A **Control Device ID:** CD-BH1, CD-BH2, /CD-SCR1, /CD-SCR2, CD-FGD, CD-BV1, CD-FS-1, CD-VF9, CD-FS-2, CD-VF10,CD-VF1, CD-VF2, /CD-VF3, CD-VF4, /CD-WC, CD-VF6, CD-VF7, CD-VF5, CD-BAG1, CD-VF11 All gauges shall be readily accessible and easily read by operating personnel and Department personnel (i.e. on ground level or easily accessible roof level). Monitoring parameter readings (i.e., pressure drop readings, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each incidence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site. Exceedance of operational range shall not be considered a violation of an emission limit of this permit, unless the exceedance is also accompanied by other information demonstrating that a violation of an emission limit has taken place. Reports of these incidences shall be submitted semiannually. If no incidences occurred during the reporting period then a letter shall indicate such. Any alternative method for monitoring control device performance must be preapproved by the Bureau and shall be incorporated into the permit as set forth in SC Regulation 61-62.70.7.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
C.8	**Emission Unit ID:** 01, 02, 04 **Equipment/Control Device ID:** UB1, UB2, AXB1 (S. C. Regulation 61-62.5, Standard No. 5.2) Any existing source where a burner assembly is replaced with another burner assembly after June 25, 2004, regardless of size or age of the burner assembly to be replaced shall be replaced with a low NO_X burner assembly or equivalent technology, and shall achieve a 30 percent reduction from uncontrolled NO_X emission levels based upon manufacturer's specifications. An exemption from this requirement shall be granted when a single burner assembly is being replaced in an existing source with burners due to non-routine maintenance. The replacement of individual components such as burner heads, nozzles, or windboxes does not trigger this requirement. The owner or operator shall notify and register the burner assembly replacement with the Department, in writing, within 7 days of replacing the existing burner assembly. Notification will be provided on the Department's *Low NO_x Burner Assembly Replacement Notification* Form D-2935. Those affected sources that wish to receive an emission reduction credit for the control device will be required to submit a construction permit application. Those affected sources requesting an alternative control methodology must receive written approval prior to burner replacement. The owner or operator shall perform tune-ups every twenty-four (24) months in accordance with manufacturer's specifications or with good engineering practices. The first tune-up shall be conducted no more than twenty-four (24) months from replacement of a burner assembly for affected existing sources. Each subsequent tune-up shall be conducted no more than twenty-four (24) months after the previous tune-up. All tune-up records are required to be maintained on site and available for inspection by the Department for a period of five (5) years from the date generated. The owner or operator shall develop and retain a tune-up plan on file.
C.9	**Emission Unit ID:** 01, 02, 04, 08, Insignificant Activities **Equipment ID:** UB1, UB2, AXB1, GH-1, GH-2, GH-3, GH-4, GH-5, GH-6, GH-7, GH-8, GH-9, LH-1, LH-2, LH-3, LH-4, LH-5, LS-A, IA-ENG2, IA-ENG3 **Control Device ID:** CD-BH1, CD-BH2, CD-VF11

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	All references to NSPS or §60 in this permit, refer to both S.C. Regulation 61-62.60 - "South Carolina Designated Facility Plan And New Source Performance Standards" and Code of Federal Regulations Title 40, Part 60 – "Standards Of Performance For New Stationary Sources." All equipment specified in this permit as being subject to an NSPS are also subject to S.C. Regulation 61-62.60 and 40 CFR 60, Subpart A - General Provisions, and shall comply with all applicable provisions, in addition to those explicitly stated in this permit.
C.10	**Emission Unit ID:** 01, 02 **Equipment ID/Control Device ID:** UB1/CD-BH1, UB2/CD-BH2 **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 1 - Emissions from Fuel Burning Operations, Section II - Particulate Matter Emissions, the allowable discharge of particulate matter resulting from fuel burning operations is based on the input heat rate of each source. For sources operating below 1,300 Million BTU/hr heat input rate, the limit is 0.6 lb/Million BTU (3 hour block average). For sources operating equal to or above 1,300 Million BTU/hr heat input rate, the limit is expressed as a function of the input heat rate per the following equation: $E = 57.84\ P^{-0.637}$ where E = the allowable emission rate in pounds per Million BTU heat input and P = Million BTU heat input per hour **State Only:** No **Testing:** The owner/operator shall demonstrate compliance through source testing. Testing shall be conducted semiannually each year during the first and third quarters or during the second and fourth quarters as determined by the established cycle, except for the following alternate schedule. If the source operates under 80 percent of its particulate limit as demonstrated by the three previous consecutive source tests, annual source testing in the same quarter as the previous test is allowed until a source test result greater than 80 percent returns the frequency to semiannual. If any applicable COMs data recorded in a quarter shows exceedances above the opacity standard, the Department may require the permittee to perform additional actions to demonstrate compliance with the particulate matter standard. Actions may include, but are not limited to, additional particulate matter source testing. Unless otherwise directed by the Department, an owner/operator shall conduct a minimum of one particulate matter source test during each Title V year. Particulate matter source testing is to be conducted in accordance with SC Regulation 61-62.1 Section IV.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Monitoring/Record Keeping/Reporting/Other: The owner/operator shall maintain records of site specific source testing at the facility in a permanent form suitable for inspection by Department personnel. The baghouses shall be in place and operational whenever processes controlled by it (Unit 1 Boiler and Unit 2 Boiler) are running, except during periods of baghouse malfunction or mechanical failure at which times the owner/operator shall follow procedures as outlined in SC Regulation 61-62.1 Section II(J). Baghouse operations shall be consistent with the technological limitations, manufacturers' specifications, safety concerns, and good engineering and maintenance practices for the baghouses. The owner/operator shall utilize a plan detailing how to minimize emissions during periods when the baghouses are unable to operate. The plan shall also detail how to minimize emission unit operation during periods in which the baghouse is unable to operate. The owner/operator shall maintain the plan on site and keep records on site demonstrating compliance with the plan.
C.11	**Emission Unit ID:** 01, 02 **Equipment ID/Control Device ID:** UB1/CD-FGD, UB2/CD-FGD **Limits/Standards:** In accordance with SC Regulation 61-62.5, Standard No. 1 - Emissions from Fuel Burning Operations, Section III - Sulfur Dioxide Emissions, the maximum allowable discharge of SO_2 resulting from each fuel burning source is 2.3 pounds per million BTU heat input (24 hour block average). **State Only:** No **Testing:** None Required. Compliance measurements will be determined by the SO_2 CEMS. **Monitoring/Record Keeping/Reporting/Other:** Reports demonstrating compliance with the sulfur dioxide limits shall be submitted semiannually.
C.12	**Emission Unit ID:** 01, 02 **Equipment ID/Control Device ID:** UB1/CD-BH1, UB1/CD-SCR1, UB1/CD-FGD, UB2/CD-BH2, UB2/CD-SCR2, UB2/CD-FGD **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 1 - Emissions from Fuel Burning Operations, Section I – Visible Emissions, any fuel combustion source constructed before February 11, 1971 shall not discharge into the ambient air smoke which exceeds an opacity of forty (40)

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	percent. The forty (40) percent opacity limit may be exceeded for sootblowing, but may not be exceeded for more than six (6) minutes in a one hour period nor be exceeded for more than a total of twenty-four (24) minutes in a twenty-four (24) hour period. Emissions caused by sootblowing shall not exceed sixty (60) percent opacity. Owners and operators shall, to the extent practicable, maintain and operate any source including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. In addition, the owner or operator shall maintain a log of the time, magnitude, duration, and any other pertinent information to determine periods of startup and shutdown and make available to the Department upon request. **State Only:** No **Testing:** The owner or operator shall operate and maintain continuous monitoring system(s) for the measurement of opacity. The monitor shall meet the performance specifications in S.C. Regulation 61-62.5, Standard No. 1, Section IV(D). **Monitoring/Record Keeping/Reporting/Other:** The owner/operator shall maintain a log of the time, magnitude, duration and any other pertinent information to determine periods of startup and shutdown. The owner/operator shall maintain records and submit quarterly reports as listed in S.C. Regulation 61-62.5, Standard No. 1, Section IV.
C.13	**Emission Unit ID:** 01, 02 **Equipment ID/Control Device ID:** UB1/CD-BH1, UB2/CD-BH2 **Limits/Standards:** These sources are subject to 40 CFR 64 Compliance Assurance Monitoring (CAM) and shall comply with all applicable provisions. The sources qualify as pollutant-specific emissions units for PM_{10} emissions per §64.2(a) CAM, and shall comply with all applicable provisions. To meet the requirements of 40 CFR 64, the owner/operator shall continue to operate and maintain the indicator specified below as the measurement approach:

Unit ID/Equip ID/Control ID	Indicator/Condition *40CFR64.6(c)(1)(i)*	Measurement Approach *40CFR64.6(c)(1)(ii)*	Averaging Period *40CFR64.6(c)(1)(iii)*	Excursion Level *40CFR64.6(c)(2)*
01/UB1/CD-BH1	Opacity	COMS	3 hour block average	>38%

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	02/UB2/CD-BH2 | Opacity | COMS | 3 hour block average | >38%
	The indicators shown shall be used to provide assurance of compliance with each applicable requirement. An excursion is defined as any continuous opacity monitor system (COMS) data, excluding periods of startup, shutdown and soot-blowing, where the 3-hour block average is equal to or greater than the excursion level. Upon detecting an excursion, the owner or operator shall take corrective action to restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable, in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the duration of any startup, shutdown or malfunction period, and taking necessary corrective action to restore normal operation and prevent the likely recurrence of the cause of an excursion (other than those caused by excused startup and shutdown conditions). **State Only:** No **Testing:** The selected indicator and designated condition for the monitored parameter were derived from stack test data, which demonstrates compliant operation of the equipment. QA/QC practices, etc. shall consist of performing performance evaluations and calibration checks for each COMS that meet 40 CFR 60.13 and 40 CFR 60 Appendix B, Performance Specification 1 requirements. **Monitoring/Record Keeping/Reporting/Other:** A semiannual report for monitoring under 40 CFR 64.9 shall include, at a minimum, the information required under SC Regulation 61-62.70.6(a)(3)(iii) and the following information as applicable: 1. Summary information of the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; 2. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero span or other daily calibration checks, if applicable); 3. If applicable, evidence of an effectivity assessment respecting response to excursion events. 4. If applicable, all aspects of the CAM plan(s) that need revision, correction, or addition. 5. If applicable, a description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in 40 CFR 64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions and quality improvement plans.
C.14	**Emission Unit ID/Equipment ID:** 01/UB1, 02/UB2 This facility is subject to S.C. Regulation 61-62.72, 40 CFR 72, 73, 74, 75, and 76 and the limits specified in Attachment – Title IV Acid Rain Program. The owner/operator shall comply with the monitoring and reporting requirements as provided in 40CFR Parts 74, 75 and 76.
C.15	**Emission Unit ID/Equipment ID:** 01/UB1, 02/UB2 This facility is subject to SC Regulation 61-62.96 Nitrogen Oxides (NOx) and Sulfur Dioxide (SO_2) Budget Trading Program and the federal rule entitled 40 CFR 96 NO_X Budget Trading Program And CAIR NO_X And SO_2 Trading Programs For State Implementation Plans. The CAIR permit is Attachment – CAIR Permit of this permit. Existing affected units shall comply with the applicable provisions by the compliance dates specified in each Subpart. Any new affected units shall comply with the requirements of these Subparts upon initial start-up, unless otherwise noted.
C.16	**Emission Unit ID/Equipment ID:** 01/UB1, 02/UB2 In accordance with 40 CFR 76.11, the Department has approved a NO_X emissions averaging plan for these units, effective from calendar year 2014 through 2018. Under the plan, the actual BTU-weighted annual average NO_X emission rate for the units in the plan shall be less than or equal to the BTU-weighted annual average NO_X emission rate for the same units had they each been operated, during the same period of time, in compliance with the individual applicable emission limitations under 40 CFR 76.5, 76.6, or 76.7, except that fo r any early election units, the applicable emission limitation shall be under 40 CFR 76.7. If the designated representative demonstrates that the requirement of the prior sentence (as set forth in 40 CFR 76.11(d)(1)(ii)(A) is met for a year under the plan, then these units shall be deemed to be in compliance for that year with its alternative contemporaneous annual emission limitation and annual heat input limit. If the designated representative cannot make the above demonstration (as set forth in 40 CFR 76.11(d)(1)(ii)(A) for a year under the plan and if these units fail to meet the annual average alternative contemporaneous emission limitation of 0.39 lb/Million BTU (each) or have an annual heat input greater than 35,288,800 Million BTU (each), then excess emissions of nitrogen oxides occur during the year at these units. A penalty for excess emissions will be assessed in accordance with 40 CFR 77.6. In addition to the described NO_X compliance plan, these units shall comply with all other applicable requirements of 40 CFR 76, including the duty to reapply for a NO_X compliance plan and requirements covering excess emissions.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
C.17	**Emission Unit ID:** 01, 02 **Equipment ID/Control Device ID:** UB1/CD-BH1, UB1/CD-SCR1, UB1/CD-FGD, UB2/CD-BH2, UB2/CD-SCR2, UB2/CD-FGD **Limits/Standards:** The combustion of any waste is subject to S.C. Regulation 61-62.5, Standard No. 3, as applicable. Any material containing PCBs in a concentration equal to or greater than 50 ppm or meeting the definition of Hazardous Waste, shall not be fired. Combustion of fuels, fuel additives, or modifiers, shall meet the definition of "virgin fuels" or "spec.-oil" as defined by S.C. Regulation 61-62.1, Section I – Definitions. The use of any substance as fuel, except as specific in this permit, is prohibited without advance written approval from the Department. The UB1 and UB2 units are permitted to combust the following materials, alone or in combination: Coal No. 2 fuel oil Activated carbon generated from the water treatment process petroleum contaminated organic media, petroleum contaminated rags, petroleum contaminated absorbents and petroleum contaminated vermiculite/ "oil dri" non-hazardous oil sludge from virgin fuel oil storage tanks Heritage HES Emulsion AMELIZ395 Binder as part of a 0.2% polymer solution Heritage ECS Emulsion AM-ELIZ371 Binder as part of a 0.2% polymer solution Covol Technologies Synthetic Binder as part of a 0.2% polymer solution NALCO 9838 Binder as part of a 0.2% polymer solution Halren J316 v203W LN Binder as part of a 0.75% polymer solution spent boiler cleaning fluid comprised of 1% solution of ammoniated salt of Ethylene Diamine Tetra-acetic Acid (EDTA) Emissions from modified coal combustion shall not be greater than that resulting from combustion of virgin coal. **On-Site** Per S.C. Regulation 61-62.5, Standard 3, Section III (J)(6), sources may combust small quantities of waste that is generated by the owner/operator, not to exceed a waste firing rate of 6% of the unit's design heat input rate. The owner/operator is prohibited from combusting any waste not specifically listed in

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	the permit. An analysis may be required to prove that the material to be burned is one of the substances authorized by the permit. **Spec. Oil** Per S.C. Regulation 61-62.5, Standard 3, Section III (J)(7), owner/operators combusting specification used oil are exempt from the emission limitations listed in Table III of this standard, provided that the permit lists the exact wastes to be combusted and an analysis shows the oil to meet the definition of specification oil as listed in S.C. Regulation 61-62.1, Section I. The specification-used oil can not exceed 1000 ppm total halogen, 100 ppm total lead, 10 ppm total chromium, 2 ppm total cadmium, 5 ppm total arsenic, 120 ppm total nickel, or Flash point of 100 degrees Fahrenheit minimum. **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** Prior to burning the oil sludge from virgin fuel storage tanks, the facility shall determine if each source of oil sludge is non-hazardous according to Regulation R. 61-79 and shall contact the Waste Assessment Section of the Bureau of Land and Waste Management with any questions concerning the requirements for disposal. Per S.C. Regulation 61-62.5, Standard 3, Section III (J)(6)(c), the owner/operator shall maintain records of the small quantity of owner/operator generated waste material to be combusted, in appropriate units, and its firing rate. A chemical analysis shall be performed on each waste oil shipment received. Total halogen, total lead, total chromium, total cadmium, total arsenic, and total nickel content compliance shall be demonstrated by chemical analysis on an as fired basis for each shipment unless all shipments are from a single batch; in which case, one analysis from each batch is sufficient. Additionally, a chemical analysis for percent nitrogen, percent sulfur, BTU content, and flash point shall be performed. All shipments or batches shall be certified as complying with the PCB content limit. Records of analysis and certifications shall be maintained by the owner/operator for a period of at least five (5) years from the date generated and shall be made available to Department personnel upon request.
C.18	**Emission Unit ID/Equipment ID:** 04/AXB1 **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 1 - Emissions from Fuel Burning Operations, Section II - Particulate Matter Emissions, the allowable discharge of particulate matter resulting from fuel burning operations is based on the input heat rate of each source. For sources operating below 1,300 Million BTU/hr heat input rate, the limit is 0.6 lb/Million BTU (3 hour block average). For sources operating equal to or above 1,300 Million BTU/hr heat input rate, the limit is expressed as a function of the input heat rate per the following equation:

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	$E = 57.84\ P^{-0.637}$ where E = the allowable emission rate in pounds per Million BTU heat input and P = Million BTU heat input per hour In accordance with S.C. Regulation 61-62.5, Standard No. 1 - Emissions from Fuel Burning Operations, Section I – Visible Emissions, any fuel combustion source constructed on or after February 11, 1971 shall not discharge into the ambient air smoke which exceeds an opacity of twenty (20) percent. The twenty (20) percent opacity limit may be exceeded for sootblowing, but may not be exceeded for more than six (6) minutes in a one hour period nor be exceeded for more than a total of twenty-four (24) minutes in a twenty-four (24) hour period. Emissions caused by sootblowing shall not exceed sixty (60) percent opacity. **State Only:** No **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** The limits set forth above do not apply during startup or shutdown. The owner/operator shall, to the extent practicable, maintain and operate any source in a manner consistent with good air pollution control practices for minimizing emissions. The owner/operator shall perform a visual inspection on a semiannual basis. Logs shall be kept to record all visual inspections, including cause and corrective action taken for any abnormal emissions and visual inspections from date of recording. The owner/operator shall submit semiannual reports. The report shall include records of abnormal emissions, if any, and corrective actions taken. If only natural gas was combusted or if the unit did not operate during the semiannual period, the report shall state so.
C.19	**Emission Unit ID/Equipment ID:** 04/AXB1 **Limits/Standards:** In accordance with SC Regulation 61-62.5, Standard No. 1 - Emissions from Fuel Burning Operations, Section III - Sulfur Dioxide Emissions, the maximum allowable discharge of SO_2 resulting from this fuel burning source is 2.3 pounds per million BTU heat input (24 hour block average). **State Only:** No **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** This unit is permitted to burn only No. 2 fuel oil. The fuel oil sulfur content shall be less than or equal to 0.0015 percent by weight. The use of waste oil,

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	hazardous waste, or any other waste chemical as a fuel shall not be allowed without prior written approval from this Bureau. Fuel oil supplier certification shall be obtained for each batch of oil received and stored on site. Semiannual fuel oil certification summaries shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality. The reports shall consist of the fuel certification records and a signed statement from the owner/operator that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.
C.20	**Emission Unit ID/Equipment ID:** 04/AXB1 **Limits/Standards:** This source is subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Conditions and Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, and S.C. Regulation 61-62.60 Subparts A and Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, as applicable. The source shall comply with all applicable requirements of Subparts A and Db. In accordance with 40 CFR §60.42b(a), on or after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner/operator shall not cause to be discharged into the atmosphere any gases from the Fuel Oil Auxiliary Boiler that contain SO_2 in excess of 340 ng/J (0.80 lb/million Btu) heat input or, according to 40 CFR §60.42b(j) as an alternative, the Fuel Oil Auxiliary Boiler shall not combust oil that contains greater than 0.5 weight percent sulfur. **State Only:** No **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** In accordance with 40 CFR §60.42b(j), the owner/operator of the affected source combusting very low sulfur oil shall demonstrate that the oil meets the definition of very low sulfur oil by maintaining fuel records as described in §60.49b(r). In accordance with §60.49b(r) the owner/operator elects to demonstrate that the oil combusted in the affected unit is only very low sulfur oil and as such shall obtain and maintain fuel receipts from the fuel supplier that certify that the oil meets the definition of distillate oil as defined in §60.41b and the applicable sulfur limit. Records of these certifications shall be kept and maintained on site by the owner/operator for a period of five (5) years following the date of such record. Semiannual reports of fuel oil certification shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality. The reports shall consist of the fuel certification records and a signed statement from the owner/operator that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
C.21	**Emission Unit ID/Equipment ID:** 04/AXB1 **Limits/Standards:** This source is subject to New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, General Conditions and Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, and S.C. Regulation 61-62.60 Subparts A and Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, as applicable. The source shall continue to operate under a federally enforceable limit of operating at an annual capacity factor of 10% or less and firing No. 2 fuel oil with a nitrogen content of 0.30% weight or less. **State Only:** No **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** The owner/operator shall comply with the reporting and recordkeeping requirements in accordance with 40 CFR §60.49b, as applicable. The owner/operator shall record fuel consumption semiannually and calculate yearly fuel consumption on a twelve-month rolling sum. Reports of the calculated values and the twelve-month rolling sum shall be submitted semiannually. Semiannual reports of fuel usage shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality. Fuel usage records shall be kept for a period of five years from the date of measurement and shall be made available for inspection by Department personnel.
C.22	**Emission Unit ID:** 05 **Equipment ID:** AH-1, AH-2, AH-3, AH-4, AH-5, AH-6 **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section VIII - Other Manufacturing, particulate matter emissions from a process shall be limited to the rate specified by use of equations set forth in Standard No. 4. In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), emissions (including fugitive emissions) from sources where construction or modification began on or before December 31, 1985 shall each not exhibit an opacity greater than forty (40) percent (each). **State Only:** No **Testing:** None Required

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Monitoring/Record Keeping/Reporting/Other: The process equipment shall be maintained at or below the process weight rate specified in the application. The owner/operator shall perform a visual inspection on each piece of equipment, while the equipment is operating, on a semiannual basis. The owner/operator shall submit semiannual reports documenting that visual inspections were conducted in accordance with this condition. The report shall include records of abnormal emissions if any and corrective actions taken. If the unit did not operate during the inspection period, the report shall so state. Records of visual inspection shall be maintained on site.
C.23	**Emission Unit ID:** 05 **Equipment ID:** FA-2, FA-3, FA-4, FA-5, FA-6, FA-7, FA-11, FA-12, FA-13 **Control Device ID:** CD-VF9, CD-FS-2, CD-VF10, CD-VF1, CD-VF2, CD-VF3, CD-VF4, CD-VF5 **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section VIII - Other Manufacturing, particulate matter emissions from a process shall be limited to the rate specified by use of equations set forth in Standard No. 4. In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), emissions (including fugitive emissions) from sources where construction or modification began after December 31, 1985 shall each not exhibit an opacity greater than twenty (20) percent (each). **State Only:** No **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** The process equipment shall be maintained at or below the process weight rate specified in the application. The owner/operator shall perform a visual inspection on each piece of equipment, while the equipment is operating, on a semiannual basis. The owner/operator shall submit semiannual reports documenting that visual inspections were conducted in accordance with this condition. The report shall include records of abnormal emissions if any and corrective actions taken. If the unit did not operate during the inspection period, the report shall so state. Records of visual inspection shall be maintained on site.
C.24	**Emission Unit ID:** 05 **Equipment ID:** FA-1, FA-8, FA-9, FA-10 **Control Device ID:** CD-BV1, CD-FS-1, CD-WC, CD-VF6, CD-VF7

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Limits/Standards: In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emi Process Industries, Section VIII - Other Manufacturing, particulate matter emissions from a process shall be limited to the rate specified by use of equations set forth in Standard No. 4. In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), emissions (including fugitive emissions) from sources where construction or modification began after December 31, 1985 shall each not exhibit an opacity greater than twenty (20) percent (each). **State Only:** No **Testing:** None Required **Monitoring/Record Keeping/Reporting/Other:** The owner/operator shall implement a schedule for monthly inspection and regular cleaning or replacement of filters. The owner/operator shall perform a visual inspection on each piece of equipment, while the equipment is operating, on a semi-annual basis. The owner/operator shall submit semiannual reports documenting that visual inspections were conducted in accordance with this condition. The report shall include records of abnormal emissions if any and corrective actions taken. If the unit did not operate during the inspection period, the report shall so state. Records of inspection, maintenance, and visual inspection shall be maintained on site.
C.25	**Emission Unit ID:** 06 **Equipment ID:** CH-1, CH-4, CH-5, RC, CH-11, CH-13, CH-14, CH-15, CH-16, CH-17, CH-18, CH-19, CH-20, CH-26, CH-27, CH-28, CH-29, CH-30, CH-31 **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emi Process Industries, Section VIII - Other Manufacturing, particulate matter emissions from a process shall be limited to the rate specified by use of equations set forth in Standard No. 4. In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), emissions (including fugitive emissions) from sources shall not exhibit an opacity greater than the following: **Equipment ID** — **Opacity (each)** CH-1,CH-4, CH-5, RC, CH-11, CH-13, CH-14, CH-15, CH-16, CH-17, CH-19 — 40% CH-18, CH-20, CH-29, CH-30, CH-31 — 20% **State Only:** No

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Testing: None Required **Monitoring/Record Keeping/Reporting/Other:** The process equipment shall be maintained at or below the process weight rate specified in the application. The owner/operator shall perform a visual inspection on each piece of equipment, while the equipment is operating, on a semiannual basis. The owner/operator shall submit semiannual reports documenting that visual inspections were conducted in accordance with this condition. The report shall include records of abnormal emissions if any and corrective actions taken. If the unit did not operate during the inspection period, the report shall so state. Records of visual inspection shall be maintained on site.
C.26	**Emission Unit ID:** 06 **Equipment ID/Control Device ID:** CH-20, CH-29, CH-30, and CH-31 **Limits/Standards:** In accordance with 40 CFR 60 Subpart Y - Standards Of Performance For Coal Preparation Plants, §60.254 - Standards For Coal Processing And Conveying Equipment, Coal Storage Systems, Transfer And Loading Systems, And Open Storage Piles, (a) the owner or operator shall not cause to be discharged into the atmosphere any gases which exhibit twenty (20) percent opacity or greater (6-minute average). **State Only:** No **Testing:** In accordance with §60.255 - Performance Tests and Other Compliance Requirements, the owner/operator shall conduct any performance tests required by §60.8 using the methods specified in §60.257 - Test Methods and Procedures. **Monitoring/Record Keeping/Reporting/Other:** The owner/operator shall perform a visual inspection on a semiannual basis. The owner/operator shall submit semiannual reports documenting that visual inspections were conducted in accordance with this condition. The report shall include records of abnormal emissions if any and corrective actions taken. If the unit did not operate during the reporting period, the report shall so state.
C.27	**Emission Unit ID:** 07 **Equipment ID/Control Device ID:** CBO/CD-BAG1

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Limits/Standards: In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section VIII - Other Manufacturing, particulate matter emissions from a process shall be limited to the rate specified by use of equations set forth in Standard No. 4. In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), emissions (including fugitive emissions) from sources where construction or modification began after December 31, 1985 shall each not exhibit an opacity greater than twenty (20) percent. **State Only:** No **Testing:** The owner or operator shall operate and maintain continuous monitoring system(s) for the measurement of opacity and this will serve as an approved method to determine compliance with the opacity limitation for the CBO in this condition. **Monitoring/Record Keeping/Reporting/Other:** The owner/operator shall implement a schedule for monthly inspection and regular cleaning or replacement of filters (CD-BAG1). Opacity for the CBO unit will be monitored by the continuous opacity monitor (COM) system located in the main stack for emission point ID UB-1 or UB-2. For emission point ID UB-12, the COM system is located after CD-BAG1 and prior to CD-FGD. The main stack (emission point ID UB-1, UB-2, or UB-12) is determined by which stack is receiving the CBO flue gas. The main stack receiving the CBO flue gas shall not exceed 20% opacity when the CBO is in operation for either the CBO unit or the main unit where the CBO flue gas is discharged. The owner/operator shall maintain records on-site.
C.28	**Emission Unit ID:** 08 **Equipment ID/Control Device ID:** GH-1, GH-2, GH-3, GH-4, GH-5, GH-6, GH-7, GH-8, GH-9, LH-1, LH-2, LH-3, LH-4, LH-5, LS-A/CD-VF11 **Limits/Standards:** In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section VIII - Other Manufacturing, particulate matter emissions from a process shall be limited to the rate specified by use of equations set forth in Standard No. 4. In accordance with S.C. Regulation 61-62.5, Standard No. 4 - Emissions from Process Industries, Section IX - Visible Emissions (Where Not Specified Elsewhere), emissions (including fugitive emissions) from sources where construction or modification began after December 31, 1985 shall each not exhibit an opacity greater than twenty (20) percent (each). **State Only:** No **Testing:** None Required

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Monitoring/Record Keeping/Reporting/Other: The process equipment will be maintained at or below the process weight rate specified in the application. The owner/operator shall perform a visual inspection on each piece of equipment, while the equipment is operating, on a semiannual basis. The owner/operator shall submit semiannual reports documenting that visual inspections were conducted in accordance with this condition. The report shall include records of abnormal emissions if any and corrective actions taken. If the unit did not operate during the inspection period, the report shall so state. Records of visual inspection shall be maintained on site.
C.29	**Emission Unit ID:** 08 **Equipment ID/Control Device ID:** GH-1, GH-2, GH-3, GH-4, GH-5, GH-6, GH-7, GH-8, GH-9, LH-1, LH-2, LH-3, LH-4, LH-5 **Limits/Standards:** In accordance with New Source Performance Standards (NSPS), 40 CFR 60 Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, §60.672 - Standards For Particulate Matter, the owner/operator shall not cause to be discharged into the atmosphere from any transfer point or belt conveyor fugitive emissions which exhibit an opacity in excess of ten (10) percent (6-minute average). **State Only:** No **Testing:** In accordance with §60.675 - Test Methods and Procedures, the owner/operator shall conduct performance tests required by §60.8 using the methods specified in §60.675 paragraphs (a), (b), (c), (d), (e), (f), and (g), and as approved by the Department. **Monitoring/Record Keeping/Reporting/Other:** In accordance with §60.676 - Reporting and Recordkeeping, the owner/operator shall submit written reports of the results of all performance tests conducted to demonstrate compliance with this Subpart.
C.30	**Emission Unit ID:** 08 **Equipment ID/Control Device ID:** LS-A/CD-VF11 **Limits/Standards:** In accordance with New Source Performance Standards (NSPS), 40 CFR 60 Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, §60.672, the owner/operator shall not cause to be discharged into the atmosphere, from any baghouse that controls

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	emissions from the individual, enclosed LS-A storage bin, stack emissions which exhibit an opacity in excess of seven (7) percent (6-minute average). **State Only:** No **Testing:** In accordance with §60.675 - Test Methods and Procedures, the owner/operator shall conduct performance tests required by §60.8 using the methods specified in §60.675 paragraphs (a), (b), (c), (d), (e), (f), and (g), and as approved by the Department. **Monitoring/Record Keeping/Reporting/Other:** In accordance with §60.676 - Reporting and Recordkeeping, the owner/operator shall submit written reports of the results of all performance tests conducted to demonstrate compliance with this Subpart.
C.31	**Emission Unit ID:** Insignificant Activities **Equipment ID:** IA-ST11, IA-ST12 In accordance with S.C. Regulation 61-62.68, Chemical Accident Prevention Provisions, due to in-process storage or use of a regulated substance in quantities above the specified threshold, the following must be completed: 1. Submittal of a Risk Management Plan (RMP) to the Environmental Protection Agency (EPA) prior to the date the regulated substance is first present above the threshold quantity in a process. 2. Compliance with the Risk Management Program prior to the date the regulated substance is first present above the threshold quantity in a process. 3. Submittal of subsequent revisions/corrections/updates of the RMP in accordance with S.C. Regulation 61-62.68.190 and 68.195. 4. For Program 1 processes, the owner/operator shall submit along with the RMP the certification statement provided in Section 68.12(b)(4). For all other covered processes, the owner/operator shall submit along with the RMP a single certification that, to the best of the signer's knowledge, information, and belief formed after reasonable inquiry, the information submitted is true, accurate, and complete. If it is determined by the implementing agency (or other delegated authority) that additional relevant information is needed, this facility will be required to submit the information in a timely manner.
C.32	**Emission Unit ID:** Insignificant Activities

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS
(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	Equipment ID: IA-ENG2, IA-ENG3 The emergency fire pump diesel engine (IA-ENG2) and emergency scrubber quench water pump diesel engine (IA-ENG3) have been determined to be insignificant activities in accordance with South Carolina Regulation 61-62.70.5(c) and are listed as insignificant sources in this permit. These sources shall still comply with the requirements of New Source Performance Standards (NSPS), 40 CFR 60 Subpart A (General Provisions) and Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines) and South Carolina Regulation 61-62.60 Subparts A and IIII, as applicable. These sources shall comply with all applicable requirements of these Subparts. These sources are also subject to comply with 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAP), Subparts A (General Provisions) and ZZZZ (NESHAP for Stationary Reciprocating Internal Combustion Engines), however there are no compliance requirements because compliance with 40 CFR 60, NSPS Subpart IIII is more stringent.
C.33	This facility has processes potentially subject to the provisions of S.C. Regulation 61-62.60 and 40 CFR 60, Standards Of Performance For New Stationary Sources, Subparts A (General Provisions) Subpart DDDD –(Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units). Should this facility be subject to these regulations, the owner/operator shall follow all applicable requirements as specified in the regulation.
C.34	**Emission Unit ID:** 01, 02, 04 **Equipment Unit ID:** UB1, UB2, AXB1 (40 CFR 51) This facility is an applicable source under 51.1200(2) Data Requirements Rule for Characterizing Air Quality for the Primary SO_2 NAAQS (DRR). Per 51.1203(d)(2), the modeled SO_2 emission rate from Stack UB12 will be limited to less than or equal to 2687.3 pounds per hour and the modeled SO_2 emission rate from Stack AB1 will be limited to less than or equal to 0.32 pounds per hour. The first compliance period shall start on January 1, 2017 and end on December 31, 2017. Compliance with these limits will be demonstrated through the CEMs, recordkeeping and reporting of actual emissions for Stack UB12 and fuel certification records and heat input for Stack AB1 Per these requirements, the owner or operator shall submit semi-annual monitoring reports to the Bureau. These reports shall be submitted to the Bureau of Air Quality, Manager of Technical Management and the reports shall meet the requirements below: **<u>Semiannual report</u>**: The semi-annual report shall be submitted to the Bureau within 30 days of the end of each reporting period and shall contain the following: ☐ The actual emissions for each hour in the reporting period for Stack UB12. ☐ The actual emissions for each hour in the reporting period for Stack AB1

C. LIMITATIONS, MONITORING AND REPORTING CONDITIONS

(S.C. Regulation 61-62.1, Section II; S.C. Regulation 61-62.70.6.a.3.i.B)

Condition Number	Condition
	❑ An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be included in the initial report. Subsequent submittals of the algorithm are required within 30 days of the change if the algorithm or basis for emissions is modified or the Department requests additional information.

D. NESHAP PERIODIC REPORTING SCHEDULE SUMMARY

NESHAP Part	NESHAP Subpart	Compliance Monitoring Report Submittal Frequency	Reporting Period	Report Due Date
63	ZZZZ (Emergency Generators see note 3 and 4)	N/A	N/A	N/A
63	DDDDD (5D)	Five Year	Five Years	Postmarked no later than January 31 following the end of the reporting period

1. This table summarizes only the periodic compliance reporting schedule. Additional reports may be required. See specific NESHAP Subpart for additional reporting requirements and associated schedule.
2. This reporting schedule does not supersede any other reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, 40 CFR Part 63, and/or Title V. The MACT reporting schedule may be adjusted to coincide with the Title V reporting schedule with prior approval from the Department in accordance with 40 CFR Part 63.10.a.5. This request may be made 1 year after the compliance date for the associated MACT standard.
3. Facilities with emergency generators are not required to submit reports. Only facilities with non-emergency engines are required to submit semi annual reports.
4. Facilities with emergency engines shall comply with the operations limits specified in 40 CFR 63.6640(f).

E. NESHAP - CONDITIONS

Condition Number	Condition
E.1	All NESHAP notifications and reports shall be sent to the Manager of the Air Toxics Section, South Carolina Department of Health and Environmental Control - Bureau of Air Quality.
E.2	All NESHAP notifications and the cover letter to periodic reports shall be sent to the United States Environmental Protection Agency (US EPA) at the following address or electronically as required by the specific subpart:

E. NESHAP - CONDITIONS

Condition Number	Condition
	US EPA, Region 4 **Air, Pesticides and Toxics Management Division** **61 Forsyth Street SW** **Atlanta, GA 30303**
E.3	Emergency power generators less than or equal to 150 kilowatt (kW) rated capacity or greater than 150 kW rated capacity designated for emergency use only and operated a total of 500 hours per year or less for testing and maintenance with a method to record the actual hours of use such as an hour meter have been determined to be exempt from construction permitting requirements in accordance with South Carolina Regulation 61-62.1. These sources shall still comply with the requirements of all applicable regulations including but not limited to the following: New Source Performance Standards (NSPS) 40 CFR 60 Subpart A (General Provisions); NSPS 40 CFR 60 Subpart IIII (Stationary Compression Ignition Internal Combustion Engines); NSPS 40 CFR 60 Subpart JJJJ (Stationary Spark Ignition Internal Combustion Engines); National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63 Subpart A (General Provisions); and NESHAP 40 CFR 63 Subpart ZZZZ (Stationary Reciprocating Internal Combustion Engines).
E.4	This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters." Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted.
E.5	**Emission Unit ID/Equipment ID:** 04/AXB1 The facility has requested a federally enforceable limit to be classified as a "Limited Use Boiler" as defined in Subpart 5D, Section 63.7575. Upon the compliance date of this regulation, per Section 63.7555(d)(3) of the Subpart, the facility must limit the average annual capacity factor of the boiler to less than or equal to 10 percent and keep records of fuel use for the days the boiler is in operation. (S.C. Regulation 61-62.70.6.a.3) Monitoring And Related Recordkeeping And Reporting Requirements. The annual capacity factor shall be defined as the ratio between the actual heat input to a boiler or process heater from the fuels burned during a period of 12 consecutive calendar months and the potential heat input to the boiler or process heater had it been operated for 8,760 hours during that 12-month period at the maximum design heat input capacity. The annual capacity factor shall be determined at the end of each calendar month. The average annual capacity factor shall be defined as the 12-month rolling average of the annual capacity factors and shall be determined at the end of each calendar month. Records of fuel usage, the monthly calculated annual capacity factor, along with the average annual capacity factor shall be kept on-site.
E.6	This facility has processes subject to the provisions of S.C. Regulation 61-62.63 and 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants, Subparts A and Subpart UUUUU "National

E. NESHAP - CONDITIONS

Condition Number	Condition
	Emission Standards for Hazardous Air Pollutants from Coal and Oil-Fired Electric Utility Steam Generating Units." Existing affected sources shall be in compliance with the requirements of these Subparts on the compliance date, unless otherwise noted.

F. COMPLIANCE SCHEDULE - RESERVED

G. PERMIT SHIELD - RESERVED

H. PERMIT FLEXIBILITY

Condition Number	Conditions
H.1	The facility may install, remove, and modify insignificant activities as defined in S.C. Regulation 61-62.70.5.c and exempt sources as listed in S.C. Regulation 61-62.1, Section II.B, without revising or reopening the Title V Operating Permit. A list of insignificant activities/exempt sources must be maintained on site, along with any necessary documentation to support the determination that the activity is insignificant and/or exempt, and shall be made available to a Department representative upon request. The list shall be submitted with the next renewal application.

I. AMBIENT AIR STANDARDS REQUIREMENTS

Condition Number	Condition
I.1	Air dispersion modeling (or other method) has demonstrated that this facility's operation will not interfere with the attainment and maintenance of any state or federal ambient air standard. Any changes in the parameters used in this demonstration may require a review by the facility to determine continuing compliance with these standards. These potential changes include any decrease in stack height, decrease in stack velocity, increase in stack diameter, decrease in stack exit temperature, increase in building height or building additions, increase in emission rates, decrease in distance between stack and property line, changes in vertical stack orientation, and installation of a rain cap that impedes vertical flow. Parameters that are not required in the determination will not invalidate the demonstration if they are modified. The emission rates used in the determination are listed in Attachment - Emission Rates for Ambient Air Standards of this permit. Higher emission rates may be administratively incorporated into Attachment - Emission Rates for Ambient Air Standards of

I. AMBIENT AIR STANDARDS REQUIREMENTS

Condition Number	Condition
	this permit provided a demonstration using these higher emission rates shows the attainment and maintenance of any state or federal ambient air quality standard or with any other applicable requirement. Variations from the input parameters in the demonstration shall not constitute a violation unless the maximum allowable ambient concentrations identified in the standard are exceeded. The owner/operator shall maintain this facility at or below the emission rates as listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations of this permit. Should the facility wish to increase the emission rates listed in Attachment - Emission Rates for Ambient Air Standards, not to exceed the pollutant limitations in the body of this permit, it may do so by the administrative process specified above. This is a State Only enforceable requirement.

J. TITLE V PERIODIC REPORTING SCHEDULE

Compliance Monitoring Report Submittal Frequency	Reporting Period (Begins on the effective date of the permit)	Report Due Date
Quarterly	January-March April-June July-September October-December	April 30th July 30th October 30th January 30th
Semiannual	January-June April-September July-December October-March	July 30th October 30th January 30th April 30th
Note: This reporting schedule does not supersede any Federal reporting requirements including but not limited to 40 CFR Part 60, 40 CFR Part 61, and 40 CFR Part 63. All Federal reports must meet the reporting time frames specified in the Federal standard unless the Department or EPA approves a change.		

K. TITLE V COMPLIANCE CERTIFICATION REPORTING SCHEDULE

Title V Compliance Certification Submittal Frequency	Reporting Period (Begins on the effective date of the permit)	Report Due Date
Annual	January-December April-March July-June October-September	February 14th May 15th August 14th November 14th

L. TITLE V RECORD KEEPING AND REPORTING REQUIREMENTS

Condition Number	Condition
L.1	Reporting required in this permit, shall be submitted in a timely manner as directed in the Title V Periodic Reporting Schedule and the Title V Compliance Certification Reporting Schedule of this permit. All required reports must be certified by a responsible official consistent with S.C. Regulation 61-62.70.5.d.
L.2	All reports and notifications required under this permit shall be submitted to the person indicated in the specific condition at the following address: **2600 Bull Street** **Columbia, SC 29201** The contact information for the local EQC Regional office can be found at: **http://www.scdhec.gov**
L.3	Unless elsewhere specified within this permit, all reports required under this permit shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality.
L.4	All Title V Annual Compliance Certifications shall be sent to the US EPA, Region 4, Air Enforcement Branch and to the Manager of the Technical Management Section, Bureau of Air Quality. **US EPA, Region 4** **Air Enforcement Branch** **61 Forsyth Street SW** **Atlanta, GA 30303**
L.5	(S.C. Regulation 61-62.70.6.a.3.ii) The owner or operator shall comply, where applicable, with the following monitoring/support information collection and retention record keeping requirements: 1. Records of required monitoring information shall include the following: a. The date, place as defined in the permit, and time of sampling or measurements; b. The date(s) analyses were performed; c. The company or entity that performed the analyses; d. The analytical techniques or methods used; e. The results of such analyses; and f. The operating conditions as existing at the time of sampling or measurement; 2. Records of all required monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.
L.6	In accordance with S.C. Regulation 61-62.1, Section II.J, for sources not required to have continuous emissions monitors, any malfunction of air pollution control equipment or system, process upset or other equipment failure which results in discharges of air contaminants lasting for one hour or more and which are greater than those discharges described for normal operation in the permit application shall be reported to the Department's local Environmental Quality Control (EQC) Regional office within twenty-four (24) hours after the beginning of the occurrence.

L. TITLE V RECORD KEEPING AND REPORTING REQUIREMENTS

Condition Number	Condition
	The owner or operator shall also submit a written report within thirty (30) days of the occurrence. This report shall be submitted to the Manager of the Technical Management Section, Bureau of Air Quality (BAQ) and shall include, at a minimum, the following: 1. The identity of the stack and/or emission point where the excess emissions occurred; 2. The magnitude of excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the excess emissions; 3. The time and duration of excess emissions; 4. The identity of the equipment causing the excess emissions; 5. The nature and cause of such excess emissions; 6. The steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunction; 7. The steps taken to limit the excess emissions; and, 8. Documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated, to the maximum extent practicable, in a manner consistent with good practice for minimizing emissions.
L.7	(S.C. Regulation 61-62.70.6.c.5.iii) The responsible official shall certify, annually, compliance with the conditions of this permit as required under S.C. Regulation 61-62.70.6.c. The compliance certification shall include the following: 1. The identification of each term or condition of the permit that is the basis of the certification. 2. The identification of the method(s) or means used by the owner or operator for determining the compliance status with each term and condition of the permit during the certification period. 3. The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the method or means designated in S.C. Regulation 61-62.70.6.c.5.iii.B. The certification shall identify each deviation and take it into account in the compliance certification. 4. Such other facts as the Department may require to determine the compliance status of the source.
L.8	(S.C. Regulation 61-62.1, Section II.M) Within 30 days of the transfer of ownership/operation of a facility, the current permit holder and prospective new owner or operator shall submit to the Director of Engineering Services a written request for transfer of the source operating or construction permits. The written request for transfer of the source operating or construction permit shall include any changes pertaining to the facility name and mailing address; the name, mailing address, and telephone number of the owner or operator for the facility; and any proposed changes to the permitted activities of the source. Transfer of the operating or construction permits will be effective upon written approval by the Department.

M. GENERAL FACILITY WIDE

Condition Number	Condition
M.1	The owner or operator shall comply with S.C. Regulation 61-62.2 "Prohibition of Open Burning."
M.2	The owner or operator shall comply with S.C. Regulation 61-62.3 "Air Pollution Episodes."
M.3	The owner or operator shall comply with S.C. Regulation 61-62.4 "Hazardous Air Pollution Conditions."
M.4	The owner or operator shall comply with S.C. Regulation 61-62.6 "Control of Fugitive Particulate Matter", Section III "Control of Fugitive Particulate Matter Statewide."
M.5	The owner or operator shall comply with the standards of performance for asbestos abatement operations pursuant to 40 CFR Part 61.145, including, but not limited to, requirements governing training, licensing, notification, work practice, cleanup, and disposal.
M.6	The owner or operator shall comply with the standards of performance for asbestos abatement operations pursuant to S.C. Regulation 61-86.1, including, but not limited to, requirements governing training, licensing, notification, work practice, cleanup, and disposal.
M.7	The owner or operator shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, Protection of Stratospheric Ozone, Recycling and Emissions Reduction, except as provided for motor vehicle air conditioners (MVACs) in Subpart B. If the owner or operator performs a service on motor (fleet) vehicles that involves ozone-depleting substance refrigerant in MVACs, the owner or operator is subject to all applicable requirements of 40 CFR Part 82, Subpart B, Servicing of MVACs.
M.8	(S.C. Regulation 61-62.70.6.a.5) The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.
M.9	(S.C. Regulation 61-62.70.6.a.6.i) The owner or operator must comply with all of the conditions of this permit. Any permit noncompliance constitutes a violation of the S.C. Pollution Control Act and/or the Federal Clean Air Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of permit renewal application.
M.10	(S.C. Regulation 61-62.70.6.a.6.ii) It shall not be a defense for an owner or operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
M.11	(S.C. Regulation 61-62.70.6.a.6.iii) The permit may be modified, revoked, reopened and reissued, or terminated for cause by the Department. The filing of a request by the owner or operator for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
M.12	(S.C. Regulation 61-62.70.6.a.6.iv) The permit does not convey any property rights of any sort, or any exclusive privilege.
M.13	(S.C. Regulation 61-62.70.6.a.6.v) The owner or operator shall furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the owner or operator shall also furnish to the Department copies of records required to be kept by the permit or, for information claimed to be confidential, the owner or operator may furnish such records directly to the Administrator along with a claim of

M. GENERAL FACILITY WIDE

Condition Number	Condition
	confidentiality. The Department may also request that the owner or operator furnish such records directly to the Administrator along with a claim of confidentiality.
M.14	(S.C. Regulation 61-62.70.6.a.8) No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.
M.15	(S.C. Regulation 61-62.70.6.c.2) Upon presentation of credentials and other documents as may be required by law, the owner or operator shall allow the Department or an authorized representative to perform the following: 1. Enter upon the owner or operator's premises where a Part 70 source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit. 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. 3. Inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit. 4. As authorized by the Act and/or the S.C. Pollution Control Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.
M.16	(S.C. Regulation 61-62.70.6.g) In the case of an emergency, as defined in S.C. Regulation 61-62.70.6.g.1, the owner or operator shall demonstrate an affirmative defense of emergency through properly signed, contemporaneous operating logs, or other relevant evidence that: 1. An emergency occurred and that the owner or operator can identify the cause(s) of the emergency; 2. The permitted facility was at the time being properly operated; and 3. During the period of the emergency the owner or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and 4. The owner or operator shall submit verbal notification of the emergency to the Department within twenty-four (24) hours of the time when emission limitations were exceeded, followed by written notifications within thirty (30) days. This notice fulfills the requirement of S.C. Regulation 61-62.70.6.a.3.iii.B. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. This provision is in addition to any emergency or upset provision contained in any applicable requirement. In any enforcement proceeding, the owner or operator seeking to establish the occurrence of an emergency has the burden of proof.
M.17	(S.C. Regulation 61-62.70.6.a.1.ii) Where an applicable requirement of the Act is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, both provisions shall be incorporated into the permit and shall be enforceable by the Administrator.
M.18	(S.C. Regulation 61-62.70.6.a.4) According to S.C. Regulation 61-62.70.6.a.4, the owner or operator is prohibited from emissions exceeding any allowances that the source lawfully holds under Title IV of

M. GENERAL FACILITY WIDE

Condition Number	Condition
	the Act or the regulations promulgated thereunder. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement. No limit shall be placed on the number of allowances held by a source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement. Any such allowances shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Act.
M.19	(S.C. Regulation 61-62.70.7.c.1.ii) Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with S.C. Regulation 61-62.70.5.a.1.iii, 62.70.5.a.2.iv, and 62.70.7.b. In this case, the permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the permit including any permit shield that may be granted pursuant to S.C. Regulation 61-62.70.6.f shall remain in effect until the renewal permit has been issued or denied.
M.20	Requests for permit modification and amendments shall be submitted on the appropriate Department approved Title V Modification Form(s).
M.21	(S.C. Regulation 61-62.70.6.a.7) The owners or operators of Part 70 sources shall pay fees to the Department consistent with the fee schedule approved pursuant to S.C. Regulation 61-62.70.9. Failure to pay applicable fee can be considered grounds for permit revocation.
M.22	(S.C. Regulation 61-62.1, Section III) The owners or operators of Part 70 sources shall complete and submit a new updated emissions inventory consistent with the schedule approved pursuant to S.C. Regulation 61-62.1, Section III. These Emissions Inventory Reports shall be submitted to the Manager of the Emissions Inventory Section, Bureau of Air Quality. This requirement notwithstanding, an emissions inventory may be required at any time in order to determine the compliance status of any facility.
M.23	This permit expressly incorporates insignificant activities. Emissions from these activities shall be included in the emissions inventory submittals as required by S.C. Regulation 61-62.1, Section III.B.2.g.

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The emission rates listed herein are not considered federally enforceable limitations but are used to evaluate ambient air quality impact. Until the Department makes a determination that a facility is causing or contributing to an exceedance of a state or federal ambient air quality standard, increases to these emission rates are not in themselves considered violations of these ambient air quality standards (see Ambient Air Standards Requirements).

STANDARD NO. 2 - MODELED AAQS EMISSION RATES (lbs/hr)							
STACK ID	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	Lead	HF
UB-12 (1)	910.89	5.9 (2)	16082	3271.8	113.49	0.119	42.06
AB-1	2.56	--	16	0.32	--	1.96E-03	--

(1) Combined stack for UB-1 & UB-2.

(2) The PM_{10} surrogate was used to demonstrate compliance with the $PM_{2.5}$ standards. Any future construction that would require a PM_{10} model compliance demonstration should also include a $PM_{2.5}$ compliance demonstration including emissions from source UB-12.

STANDARD NO. 2 and 7 - EXEMPTED AAQS EMISSION RATES (lbs/hr)							
STACK ID	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	Lead	HF
AB-1	--	0.62	--	--	7.85	--	--
AH-1	3.24E-03	4.90E-04	--	--	--	--	--
AH-2(1)	12.51	1.29	--	--	--	--	--
AH-3	0.27	0.08	--	--	--	--	--
AH-4	0.51	0.20	--	--	--	--	--
AH-5(1)	2.21	0.23	--	--	--	--	--
AH-6	6.78E-03	1.03E-03	--	--	--	--	--
FA-1	0.69	0.69	--	--	--	--	--
FA-2	0.07	0.02	--	--	--	--	--
FA-3	0.07	0.02	--	--	--	--	--
FA-4	0.11	0.03	--	--	--	--	--
FA-5	0.24	0.08	--	--	--	--	--
FA-6	0.12	0.04	--	--	--	--	--
FA-7	0.12	0.04	--	--	--	--	--
FA-8	1.62E-03	2.45E-04	--	--	--	--	--
FA-9	0.17	0.08	--	--	--	--	--
FA-10	0.17	0.08	--	--	--	--	--
FA-11	0.10	0.03	--	--	--	--	--
CH-1	0.36	0.05	--	--	--	--	--
CH-4	0.36	0.05	--	--	--	--	--
CH-5	0.36	0.05	--	--	--	--	--
CH-11	0.48	0.22	--	--	--	--	--

ATTACHMENT - Emission Rates for Ambient Air Standards

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STANDARD NO. 2 and 7 - EXEMPTED AAQS EMISSION RATES (lbs/hr)							
STACK ID	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	Lead	HF
CH-13	0.12	0.02	--	--	--	--	--
CH-14	0.12	0.02	--	--	--	--	--
CH-15	1.14E-02	1.70E-03	--	--	--	--	--
CH-16	0.12	0.02	--	--	--	--	--
CH-17	1.14E-02	1.70E-03	--	--	--	--	--
CH-18	0.50	0.08	--	--	--	--	--
CH-19	0.26	0.11	--	--	--	--	--
CH-20	0.11	0.02	--	--	--	--	--
CH-29	7.41E-02	1.12E-02	--	--	--	--	--
CH-30	1.14E-02	1.73E-03	--	--	--	--	--
CH-31	0.20	0.17	--	--	--	--	--
GH-1	1.62E-02	2.45E-03	--	--	--	--	--
GH-2	1.62E-02	2.45E-03	--	--	--	--	--
GH-3	0.02	0.01	--	--	--	--	--
GH-4	0.08	0.03	--	--	--	--	--
GH-5	1.62E-02	2.45E-03	--	--	--	--	--
GH-6[1]	9.88	1.04	--	--	--	--	--
GH-7	0.08	0.04	--	--	--	--	--
GH-8	0.90	0.14	--	--	--	--	--
GH-9	0.12	0.05	--	--	--	--	--
LH-1	0.03	3.98E-03	--	--	--	--	--
LH-2	5.24E-03	2.10E-03	--	--	--	--	--
LH-3	0.072	0.023	--	--	--	--	--
LH-4	2.63E-02	3.98E-03	--	--	--	--	--
LH-5	0.82	0.20	--	--	--	--	--
LH-A	7.20E-03	1.09E-03	--	--	--	--	--

[1] AH-2, AH-5, and GH-6 are mobile source emissions and are not required to be modeled.

STANDARD NO. 7 - MODELED PSD CLASS II INCREMENT EMISSION RATES (lbs/hr)				
STACK ID	Minor Source Baseline Date(s)			
	05/20/1981	--	05/20/1981	10/26/1988
	PM_{10}	$PM_{2.5}$	SO_2	NO_x
UB-12[1]	-5367.11	--	3237.8	571.05[2]
AB-1	2.60	--	16.0	15.7

[1] Standard No. 7 emission rates for UB-12 are the difference between the modeled rates for Standard No. 2 and the maximum uncontrolled emission rates for each pollutant.

ATTACHMENT - Emission Rates for Ambient Air Standards

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(2) NO_x was modeled for Standard No. 2 at a higher emission rate than the maximum uncontrolled emission rate.

South Carolina CAIR Permit

(for sources covered under the South Carolina CAIR SIP)

For more information, refer to:
40 CFR 96.121, 96.122, 96.221, 96.222, 96.321, 96.322, and South Carolina Regulation 61-62.96.

STEP 1
Identify the source by plant name, State, and ORIS or facility code

Plant Name	State	ORIS/Facility Code
Wateree Station	SC	3297

STEP 2
Identify the unit ID# for each CAIR unit and indicate to which CAIR programs each unit is subject (by placing an "X" in the column)

Unit ID#	NO_X Annual	SO_2	NO_X Ozone Season
WAT1 (Unit ID #1 in Title V permit)	X	X	X
WAT2 (Unit ID #2 in Title V permit)	X	X	X

STEP 3
Identify the standard requirements.

Standard Requirements

(a) Permit Requirements.

(1) The CAIR designated representative of each CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) required to have a title V operating permit and each CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) required to have a title V operating permit at the source shall:

(i) Submit to the South Carolina Department of Health and Environmental Control a complete CAIR permit application under §96.122, §96.222, and §96.322 (as applicable) in accordance with the deadlines specified in §96.121, §96.221, and §96.321 (as applicable); and

(ii) Submit in a timely manner any supplemental information that the South Carolina Department of Health and Environmental Control determines is necessary in order to review a CAIR permit application and issue or deny a CAIR permit.

(2) The owners and operators of each CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) required to have a title V operating permit and each CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) required to have a title V operating permit at the source shall have a CAIR permit issued by the South Carolina Department of Health and Environmental Control under subpart CC, CCC, and CCCC (as applicable) of 40 CFR part 96 for the source and operate the source and the unit in compliance with such CAIR permit.

(3) Except as provided in subpart II, III, and IIII (as applicable) of 40 CFR part 96, the owners and operators of a CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) that is not otherwise required to have a title V operating permit and each CAIR NO_X

unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) that is not otherwise required to have a title V operating permit are not required to submit a CAIR permit application, and to have a CAIR permit, under subpart CC, CCC, and CCCC (as applicable) of 40 CFR part 96 for such CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) and such CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable).

(b) Monitoring, reporting, and recordkeeping requirements.

(1) The owners and operators, and the CAIR designated representative, of each CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) and each CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) at the source shall comply with the monitoring, reporting, and recordkeeping requirements of subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96.

(2) The emissions measurements recorded and reported in accordance with subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96 shall be used to determine compliance by each CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) with the CAIR NO_X emissions limitation, CAIR SO_2 emissions limitation, and CAIR NO_X Ozone Season emissions limitation (as applicable) under paragraph (c) of §96.106, §96.206, and §96.306 (as applicable).

(c) Nitrogen oxides emissions requirements.

(1) As of the allowance transfer deadline for a control period, the owners and operators of each CAIR NO_X source and each CAIR NO_X unit at the source shall hold, in the source's compliance account, CAIR NO_X allowances available for compliance deductions for the control period under §96.154(a) in an amount not less than the tons of total nitrogen oxides emissions for the control period from all CAIR NO_X units at the source, as determined in accordance with subpart HH of 40 CFR part 96.

(2) A CAIR NO_X unit shall be subject to the requirements under paragraph (c)(1) of §96.106 for the control period starting on the later of January 1, 2009 or the deadline for meeting the unit's monitor certification requirements under §96.170(b)(1), (2), or (5) and for each control period thereafter.

(3) A CAIR NO_X allowance shall not be deducted, for compliance with the requirements under paragraph (c)(1) of §96.106, for a control period in a calendar year before the year for which the CAIR NO_X allowance was allocated.

(4) CAIR NO_X allowances shall be held in, deducted from, or transferred into or among CAIR NO_X Allowance Tracking System accounts in accordance with subparts FF, GG, and II of 40 CFR part 96.

(5) A CAIR NO_X allowance is a limited authorization to emit one ton of nitrogen oxides in accordance with the CAIR NO_X Annual Trading Program. No provision of the CAIR NO_X Annual Trading Program, the CAIR permit application, the CAIR permit, or an exemption under §96.105 and no provision of law shall be construed to limit the authority of the State or the United States to terminate or limit such authorization.

(6) A CAIR NO_X allowance does not constitute a property right.

(7) Upon recordation by the Administrator under subpart EE, FF, GG, or II of 40 CFR part 96, every allocation, transfer, or deduction of a CAIR NO_X allowance to or from a CAIR NO_X source's compliance account is incorporated automatically in any CAIR permit of the source that includes the CAIR NO_X unit.

Sulfur dioxide emission requirements.

(1) As of the allowance transfer deadline for a control period, the owners and operators of each CAIR SO_2 source and each CAIR SO_2 unit at the source shall hold, in the source's compliance account, a tonnage equivalent of CAIR SO_2 allowances available for compliance deductions for the control period under §96.254(a) and (b) not less than the tons of total sulfur dioxide emissions for the control period from all CAIR SO_2 units at the source, as determined in accordance with subpart HHH of 40 CFR part 96.

(2) A CAIR SO_2 unit shall be subject to the requirements under paragraph (c)(1) of §96.206 for the control period starting on the later of January 1, 2010 or the deadline for meeting the unit's monitor certification requirements under §96.270(b)(1), (2), or (5) and for each control period thereafter.

(3) A CAIR SO_2 allowance shall not be deducted, for compliance with the requirements under paragraph (c)(1) of §96.206, for a control period in a calendar year before the year for which the CAIR SO_2 allowance was allocated.

(4) CAIR SO_2 allowances shall be held in, deducted from, or transferred into or among CAIR SO_2 Allowance Tracking System accounts in accordance with subparts FFF, GGG, and III of 40 CFR part 96.

(5) A CAIR SO_2 allowance is a limited authorization to emit sulfur dioxide in accordance with the CAIR SO_2 Trading Program. No provision of the CAIR SO_2 Trading Program, the CAIR permit application, the CAIR permit, or an exemption under §96.205 and no provision of law shall be construed to limit the authority of the State or the United States to terminate or limit such authorization.

(6) A CAIR SO_2 allowance does not constitute a property right.

(7) Upon recordation by the Administrator under subpart FFF, GGG, or III of 40 CFR part 96, every allocation, transfer, or deduction of a CAIR SO_2 allowance to or from a CAIR SO_2 source's compliance account is incorporated automatically in any CAIR permit of the source that includes the CAIR SO_2 unit.

Nitrogen oxides ozone season emissions requirements.

(1) As of the allowance transfer deadline for a control period, the owners and operators of each CAIR NO_X Ozone Season source and each CAIR NO_X Ozone Season unit at the source shall hold, in the source's compliance account, CAIR NO_X Ozone Season allowances available for compliance deductions for the control period under §96.354(a) in an amount not less than the tons of total nitrogen oxides emissions for the control period from all CAIR NO_X Ozone Season units at the source, as determined in accordance with subpart HHHH of 40 CFR part 96.

(2) A CAIR NO_X Ozone Season unit shall be subject to the requirements under paragraph (c)(1) of §96.306 for the control period starting on the later of May 1, 2009 or the deadline for meeting

the unit's monitor certification requirements under §96.370(b)(1), (2), (3) or (7) and for each control period thereafter.

(3) A CAIR NO_X Ozone Season allowance shall not be deducted, for compliance with the requirements under paragraph (c)(1) of §96.306, for a control period in a calendar year before the year for which the CAIR NO_X Ozone Season allowance was allocated.

(4) CAIR NO_X Ozone Season allowances shall be held in, deducted from, or transferred into or among CAIR NO_X Ozone Season Allowance Tracking System accounts in accordance with subparts FFFF, GGGG, and IIII of 40 CFR part 96.

(5) A CAIR NO_X allowance is a limited authorization to emit one ton of nitrogen oxides in accordance with the CAIR NO_X Ozone Season Trading Program. No provision of the CAIR NO_X Ozone Season Trading Program, the CAIR permit application, the CAIR permit, or an exemption under §96.305 and no provision of law shall be construed to limit the authority of the State or the United States to terminate or limit such authorization.

(6) A CAIR NO_X allowance does not constitute a property right.

(7) Upon recordation by the Administrator under subpart EEEE, FFFF, GGGG, or IIII of 40 CFR part 96, every allocation, transfer, or deduction of a CAIR NO_X Ozone Season allowance to or from a CAIR NO_X Ozone Season source's compliance account is incorporated automatically in any CAIR permit of the source.

(d) <u>Excess emissions requirements</u>.

If a CAIR NO_X source emits nitrogen oxides during any control period in excess of the CAIR NO_X emissions limitation, then:

(1) The owners and operators of the source and each CAIR NO_X unit at the source shall surrender the CAIR NO_X allowances required for deduction under §96.154(d)(1) and pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act or applicable State law; and

(2) Each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart, the Clean Air Act, and applicable State law.

If a CAIR SO_2 source emits sulfur dioxide during any control period in excess of the CAIR SO_2 emissions limitation, then:

(1) The owners and operators of the source and each CAIR SO_2 unit at the source shall surrender the CAIR SO_2 allowances required for deduction under §96.254(d)(1) and pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act or applicable State law; and

(2) Each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart, the Clean Air Act, and applicable State law.

If a CAIR NO_X Ozone Season source emits nitrogen oxides during any control period in excess of the CAIR NO_X Ozone Season emissions limitation, then:

(1) The owners and operators of the source and each CAIR NO_X Ozone Season unit at the source shall surrender the CAIR NO_X Ozone Season allowances required for deduction under

§96.354(d)(1) and pay any fine, penalty, or assessment or comply with any other remedy imposed, for the same violations, under the Clean Air Act or applicable State law; and

(2) Each ton of such excess emissions and each day of such control period shall constitute a separate violation of this subpart, the Clean Air Act, and applicable State law.

(e) Recordkeeping and Reporting Requirements.

(1) Unless otherwise provided, the owners and operators of the CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) and each CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time before the end of 5 years, in writing by the South Carolina Department of Health and Environmental Control or the Administrator.

(i) The certificate of representation under §96.113, §96.213, and §96.313 (as applicable) for the CAIR designated representative for the source and each CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) at the source and all documents that demonstrate the truth of the statements in the certificate of representation; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation under §96.113, §96.213, and §96.313 (as applicable) changing the CAIR designated representative.

(ii) All emissions monitoring information, in accordance with subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96, provided that to the extent that subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96 provides for a 3-year period for recordkeeping, the 3-year period shall apply.

(iii) Copies of all reports, compliance certifications, and other submissions and all records made or required
under the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable).

(iv) Copies of all documents used to complete a CAIR permit application and any other submission under the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable) or to demonstrate compliance with the requirements of the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable).

(2) The CAIR designated representative of a CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) and each CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) at the source shall submit the reports required under the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable) including those under subparts HH, HHH, and HHHH (as applicable) of 40 CFR part 96.

(f) Liability.

(1) Each CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) and each NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) shall meet the requirements of the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable).

(2) Any provision of the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable) that applies to a CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) or the CAIR designated representative of a CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) shall also apply to the owners and operators of such source and of the CAIR NO_X units, CAIR SO_2 units, and CAIR NO_X Ozone Season units (as applicable) at the source.

(3) Any provision of the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable) that applies to a CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) or the CAIR designated representative of a CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) shall also apply to the owners and operators of such unit.

(g) Effect on Other Authorities.

No provision of the CAIR NO_X Annual Trading Program, CAIR SO_2 Trading Program, and CAIR NO_X Ozone Season Trading Program (as applicable), a CAIR permit application, a CAIR permit, or an exemption under § 96.105, §96.205, and §96.305 (as applicable) shall be construed as exempting or excluding the owners and operators, and the CAIR designated representative, of a CAIR NO_X source, CAIR SO_2 source, and CAIR NO_X Ozone Season source (as applicable) or CAIR NO_X unit, CAIR SO_2 unit, and CAIR NO_X Ozone Season unit (as applicable) from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act.

State of South Carolina Acid Rain Permit

Issued to: Wateree Station
Operated by: South Carolina Electric and Gas Company
ORIS code: 3297
Permit No.: 1900-0013
Issue Date: September 16, 2014
Effective Date: January 1, 2015
Expiration Date: December 31, 2019

Acid Rain Permit Contents:

1) Statement of Basis
2) SO_2 Allowance Allocation and NO_X Requirements for Each Affected Unit.
3) Permit Revisions
4) The permit application submitted for this source, as corrected by South Carolina Department of Health and Environmental Control. The owners and operators of the source must comply with the standard requirements and special provisions set forth in the application.

1) Statement of Basis:

In accordance with the provisions of the Federal Clean Air Act as amended in 1990, the Pollution Control Act, Sections 48-1-50(5) and 48-1-110(a) and Titles IV and V of the Clean Air Act, the South Carolina Department of Health and Environmental Control issues this permit pursuant to the 1976 Code of Laws of South Carolina, as amended, Regulation 61-62.

2) SO_2 Allowance Allocations and NO_X Requirements for Each Affected Unit:

SO_2 Allowance Allocations * (Under Tables 2, 3, or 4 of 40 CFR Part 73)

Emission Unit ID	Equipment ID	2000 - 2009	2010 and Beyond	Additional Requirements
WAT1**	UB1	9714	9735	-
WAT2**	UB2	9267	9022	-

* The number of allowances actually held by an effected source in a unit account may differ from the number allocated by U. S. EPA. If so, a revision to the unit SO_2 allowance allocations identified in this permit is not necessary. (See 40 CFR 72.84)

Attachment – Title IV Acid Rain Program

SCE&G Wateree Station
TV-1900-0013
PAGE 2 OF 2

(Permit Updated 7/28/15, 9/15/15, 12/1/15, 2/29/16, 1/13/17 & 5/11/17)

** Emission Unit ID WAT1 corresponds to Unit ID 01 of the Title V permit and Emission Unit ID WAT2 corresponds to Unit ID 02 of the Title V permit.

NO_X Emission Limitations (On an Annual Average Basis)			
Emission Unit ID	**Equipment ID**	**lb/10^6 Btu of Heat Input**	**Additional Requirements**
WAT1**	UB1	0.46	In addition to the described NO_X compliance plan, this unit shall comply with all other applicable requirements of 40 CFR Part 76, including the duty to reapply for a NO_X compliance plan and requirements covering excess emissions.
WAT2**	UB2	0.46	

3) Permit Revisions:

RECORD OF REVISIONS			
Revision Number	**Revision Date**	**Type (AA, MM, SM)**	**Description of Change**

AA Administrative Amendment
MM Minor Modification
SM Significant Modification

4) Permit Application and Compliance Plan:

The acid rain permit application and compliance plan are incorporated into the permit and constitutes an enforceable part of the permit.

Healthy People. Healthy Communities

May 11, 2017

Ms. V. Anne Heard
Regional Administrator
US EPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303-8909

Re: South Carolina Update for the 1-hour Sulfur Dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) Data Requirements Rule (DRR)

Dear Ms. Heard:

On January 13, 2017, S.C. Department of Health and Environmental Control (SC DHEC) submitted information including modeling reports, electronic modeling files, and federally enforceable permits to satisfy the requirements for the facilities in South Carolina subject to the DRR. This letter is in response to some changes that occurred after the initial submittal that require SC DHEC to update some of that information.

As part of the information submitted on January 13, a combined air dispersion modeling demonstration for the SCE&G Wateree Station (Permit Number 1900-0013) and International Paper—Eastover Mill (Permit Number 1900-0046) was submitted that included the use of the non-default LOWWIND3 beta model option in AERMOD. A request for approval of this option as an alternative model was submitted at that time. We received a letter dated March 24, 2017 from Ms. Beverly Bannister notifying us that EPA was unable to approve the use of the LOWWIND3 beta option for this modeling. Because of this, the modeling for these facilities has been updated using the current default AERMOD model options. The updated modeling report and modeling files are enclosed.

The updated modeling includes two scenarios. The first scenario demonstrates compliance with the 1-hr SO_2 NAAQS that is based on actual hourly emissions for the SCE&G Wateree facility for the most recent three years (2014-2016) of operation. The second scenario demonstrates compliance with the 1-hr SO_2 NAAQS based on the maximum allowable permitted emissions for the SCE&G Wateree facility as put in place with a recent SO_2 permit modification. A copy of this permit modification is also enclosed. Based on the second scenario, the SCE&G Wateree facility will be able to avoid future reporting of emissions data as required under the DRR.

S.C. Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201 (803) 898-3432 www.scdhec.gov

SC DHEC requests that the information provided be considered in your review of the DRR data for SC. If you have any questions regarding this information, please contact me at (803) 898-4391 or by email at thompsrb@dhec.sc.gov.

Sincerely,

Rhonda B. Thompson, PE, Chief
Bureau of Air Quality

ec: Beverly Banister, Director, Air, Pesticides and Toxics Management Division, EPA Region 4
Scott Davis, Chief, Air Planning & Implementation Branch, EPA Region 4
Rick Gillam, Modeling Section, EPA Region 4

Enclosures

Atmospheric Sciences

Exponent®

Modeling Report for South Carolina Electric & Gas Wateree Station and International Paper Eastover Mill

Exponent®

Modeling Report for South Carolina Electric & Gas Wateree Station and International Paper Eastover Mill

Prepared for

South Carolina Electric and Gas
142 Wateree Station Road
Eastover, SC 29044

International Paper – Eastover Mill
4001 McCords Ferry Road
Eastover, SC 29044

Prepared by

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May 2017

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Acronyms and Abbreviations

24/7	24 hours per day, 7 days per week
AAQS	Ambient Air Quality Standards
AFS	Air Facility System
AIG	AERMOD Implementation Guide
ASOS	Automated Surface Observing System
BAQ	Bureau of Air Quality
BPIP	Building Profile Input Program
BPIPPRIME	EPA Building Profile Input Program for PRIME
CFR	Code of Federal Regulations
DEM	Digital Elevation Model
DHEC	Department of Health and Environmental Control
DRR	Data Requirements Rule
EPA	United States Environmental Protection Agency
ESP	electrostatic precipitator
FGD	flue gas desulfurization
GEP	Good Engineering Practice
GPM	gallons per minute
g/s	grams per second
hp	horsepower
IP	International Paper
K	Kelvin
kg	kilograms
km	kilometer
kW	kilowatts
lb/hr	pounds per hour
LK	lime kiln
m	meter
µg	microgram
ug/m^3	micrograms per cubic meter
MMBtu/hr	million British thermal units per hour
MW	megawatts
NAAQS	National Ambient Air Quality Standards
NCG	non-condensable gas
NED	National Elevation Dataset
NESHAP	National Emission Standards for Hazardous Air Pollutants
NLCD	National Land Cover Database
NLCD92	USGS National Land Cover Data 1992
NO_2	nitrogen dioxide
PB	power boiler
ppb	parts per billion
PRIME	Plume Rise Model Enhancements
PTE	Potential to Emit
RB	recovery boiler

SCE&G	South Carolina Electric & Gas
SCR	selective catalytic reduction
SO_2	sulfur dioxide
STD	smelt dissolving tank
TAD	*SO_2 NAAQS Designations Modeling Technical Assistance Document*
TPY	tons per year
TRS	total reduced sulfur
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UTM	Universal Transverse Mercator

Limitations

This report summarizes work performed to date and presents the findings resulting from that work. The findings presented herein are made to a reasonable degree of scientific certainty. Exponent reserves the right to supplement this report and to expand or modify opinions based on review of additional material as it becomes available through any additional work or review of additional work performed by others.

1 Project Description

1.1 Purpose

This air quality modeling report, submitted to the South Carolina Department of Health & Environmental Control (DHEC) Bureau of Air Quality (BAQ), provides the procedures and results of a computer dispersion modeling demonstration for use in establishing the area attainment designation for the region surrounding Eastover, South Carolina with respect to the 1-hour National Ambient Air Quality Standard (NAAQS) for sulfur dioxide (SO_2). The dispersion modeling effort focuses on the area surrounding the South Carolina Electric & Gas (SCE&G) Wateree Station and the International Paper (IP) Eastover Mill, both located in Eastover, in Richland County, South Carolina.

The procedures were designed to be consistent with applicable guidance, including the August 2016 "SO_2 NAAQS Designations Modeling Technical Assistance Document" (TAD) issued in draft form by the United States Environmental Protection Agency (EPA). The procedures were also designed to be consistent with the final Data Requirements Rule (DRR) for the 2010 1-hour SO_2 primary NAAQS. This rule was published in the Federal Register on August 21, 2015[1] and is now codified as 40 CFR 51 Subpart BB.

The current version of the TAD references other EPA modeling guidance documents, including the following clarification memos:

- The August 23, 2010 "*Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard*".

- The March 1, 2011 "*Additional Clarification Regarding Applicability of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard*" (hereafter referred to as the "additional clarification memo").

[1] 80 FR 51051

Although the March 1, 2011 additional clarification memo was written primarily for the 1-hour nitrogen dioxide (NO_2) NAAQS, some of the guidance provided therein applies to the 1-hour SO_2 NAAQS after the differences in the form of the standards are taken into account. The modeling procedures also account for guidance provided by modeling staff at DHEC BAQ.

1.2 SCE&G Wateree Station Facility Description

SCE&G Wateree Station is a fossil fuel-fired electric generating plant with a rated capacity of approximately 685 megawatts (MW). SCE&G Wateree Station operates under the terms and conditions of Part 70 Air Quality Permit No. TV-1900-0013 issued by DHEC BAQ. Its permitted emission units consist of:

- two main boilers,
- an auxiliary boiler,
- ash handling operations,
- coal handling operations,
- a carbon burnout plant, and
- limestone and gypsum handling operations.

The permitted emission units that emit SO_2 consist of the two main boilers and the auxiliary boiler. The two main boilers are wall fired units, each with a nominal rating of 3,577.5 million British thermal units per hour (MMBtu/hr). The two main boilers are permitted to fire coal, synfuel, and No. 2 fuel oil. Dedicated baghouse and selective catalytic reduction (SCR) systems control emissions from each main boiler. Emissions from the two main boilers are then exhausted to a single shared stack controlled by a flue gas desulfurization (FGD) system. Use of the FGD system is mandatory per a permit revision which went into effect on January 13, 2017. The auxiliary boiler fires No. 2 fuel oil (maximum sulfur content 0.0015% by weight), has a nominal rating of 217.9 MMBtu/hr, and does not have associated emission controls. It exhausts to a dedicated stack.

Emissions of SO_2 from the stack of the two main boilers and the auxiliary boiler stack are included in the modeling analysis. The current Part 70 Air Quality Permit for SCE&G Wateree Station lists the following three intermittent sources of SO_2:

- 541 horsepower (hp) (400 kilowatt (kW)) power block emergency diesel generator,
- 317 hp (236 kW) emergency fire pump diesel engine, and
- 207 hp (154 kW) emergency scrubber quench water pump diesel engine.

Consistent with guidance for sources of intermittent emissions provided in the March 1, 2011 additional clarification memo, these three units were not included in the modeling since they are emergency units, operate intermittently, and do not operate continuously or frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. Table 1 lists the intermittent and insignificant SO_2 sources at SCE&G Wateree Station that were not included in the modeling.

Table 1 SCE&G Wateree Station Intermittent and Insignificant SO_2 Sources

		2013		2014		2015	
Unit ID	**Description**	**Annual SO_2 Emissions (TPY)**	**Operating Hours**	**Annual SO_2 Emissions (TPY)**	**Operating Hours**	**Annual SO_2 Emissions (TPY)**	**Operating Hours**
IA-ENG1	541 hp (400 kW) Power Block Emergency Diesel Generator	0.017	30	0.009	17	0.009	17
IA-ENG2	317 hp (236 kW) Emergency Fire Pump Diesel Engine	0.007	22	0.007	23	0.012	38
IA-ENG3	207 hp (154 kW) Emergency Scrubber Quench Water Pump Diesel Engine	0.005	24	0.024	111	0.003	15
TOTAL		**0.029**		**0.04**		**0.024**	

ED_001261A_00001601

1.3 IP Eastover Mill Facility Description

IP Eastover Mill is an integrated kraft pulp and paper mill. It operates under the terms and conditions of Part 70 Air Quality Permit No. TV-1900-0046 issued by DHEC BAQ. Its permitted emission units consist of the following operations:

- Woodyard,
- Pulp mill/oxygen delignification,
- Bleaching,
- Finished products,
- Recausticizing,
- Chemical recovery,
- Power boilers, and
- Miscellaneous.

Permitted sources of SO_2 at the IP Eastover Mill consist of two recovery furnaces, a non-condensable gas (NCG) incinerator, two lime kilns, two smelt dissolving tanks, and two fossil fuel-fired steam generating units. The emissions from these sources exhaust through seven stacks consisting of:

- dedicated stacks for each lime kiln (No. 1 LK and No. 2 LK) and each smelt dissolving tank (No. 1 SDT and No. 2 SDT),
- a stack for the second power boiler (No. 2 PB),
- a stack shared by the second recovery furnace (No. 2 RF) and the NCG incinerator, and
- a stack shared by the first recovery furnace (No. 1 RF) and the first power boiler (No. 1 PB).

The only dedicated SO_2 control device employed at IP Eastover Mill is the NCG Incinerator Scrubber.

Emissions of SO_2 from these seven stacks were included in the modeling analysis. The current Part 70 Air Quality Permit for IP Eastover Mill lists additional emission units which operate intermittently that also may emit SO_2. These consist of miscellaneous portable compressors,

portable generators, portable pumps, and stationary internal combustion engines. These intermittently-operated units were not included in the modeling assessment since they do not operate continuously or frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour ambient SO_2 concentrations. Table 2 lists the intermittent and insignificant SO_2 sources at IP Eastover Mill that were not included in the modeling.

ED_001261A_00001601

Table 2 IP Eastover Mill Intermittent and Insignificant SO_2 Sources

Unit ID	hp	Description	Max SO_2 (lb/hr)*	2013		2014		2015	
				SO_2 TPY	Hours	SO_2 TPY	Hours	SO_2 TPY	Hours
#2 Fire Water Pump	240	Supplements electric fire water pump.	0.49	0.017	70	0.02	82.5	0.01	28.6
#3 Fire Water Pump	240	Supplements electric fire water pump.	0.49	0.019	80	0.01	35.3	0.01	29.8
#2-2 Mud Tank	22	Emergency agitation in case of power failure	0.04	0.001	28.9	0.0002	7.7	0.0001	5.4
#2-1 Mud Tank	22	Emergency agitation in case of power failure	0.04	0.001	35	0.0002	7.6	0.0001	4.9
#1 Lime Kiln Emergency Drive	22	Emergency kiln rotation in case of power failure	0.04	0.001	44.5	0.001	61.6	0.001	24.3
#2 Lime Kiln Emergency Drive	22	Emergency kiln rotation in case of power failure	0.04	0.0001	5.3	0.0001	4.3	0.001	26
Powerhouse Emergency Generator	77	Emergency power for powerhouse control room 10 kW generator	0.16	0.0001	1.0	0.0001	1.0	0.0001	1.0

* Emissions are based on AP-42 Table 3.3-1 emission factor of 2.05 x 10-3 lb/hp-hr and the rated hp of the unit.

1.4 Location

SCE&G Wateree Station and IP Eastover Mill are both located in Eastover, Richland County, South Carolina. The facilities are located slightly west of the Wateree River, which forms the boundary between Richland County and Sumter County, and to the east of McCords Ferry Road, also referred to as Route 601.

The facilities are situated in generally remote, rural areas with surroundings characterized by woods and fields with no nearby residences. Terrain in this area can be characterized as rolling with some nearby hills but no significant terrain features. The facilities are approximately 135 kilometers (km) northwest (inland) of the nearest coastal area. Figure 1 shows the terrain in the area surrounding the two facilities. Figure 2 shows the land use in the area. Figure 3 shows the area surrounding SCE&G Wateree Station and IP Eastover Mill. A circle with a radius of 10 km centered on a point midway between the two facilities is plotted on Figure 2 and Figure 3 to help establish scale. The distance between SCE&G Wateree Station and IP Eastover Mill is on the order of 6.7 km. Note that some of the plotted circles are terrain following, so that they may appear to have ripples.

Figure 4 shows a close up view of the area surrounding SCE&G Wateree Station, while Figure 5 shows a close up view of the area surrounding IP Eastover Mill. In each figure, a circle with a radius of 1 km centered on the facility is plotted to establish scale.

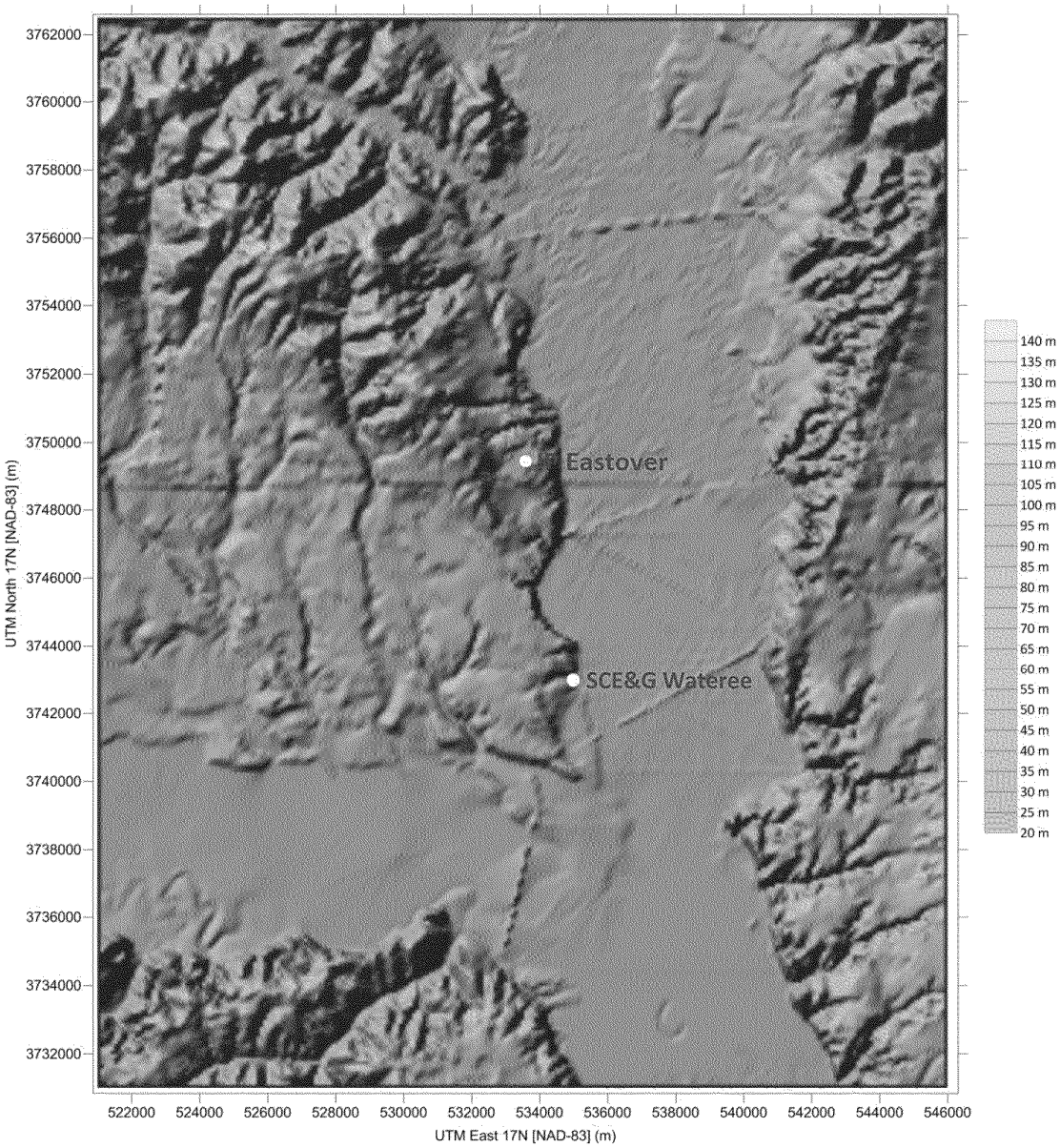

Figure 1 Terrain surrounding SCE&G Wateree Station and IP Eastover Mill

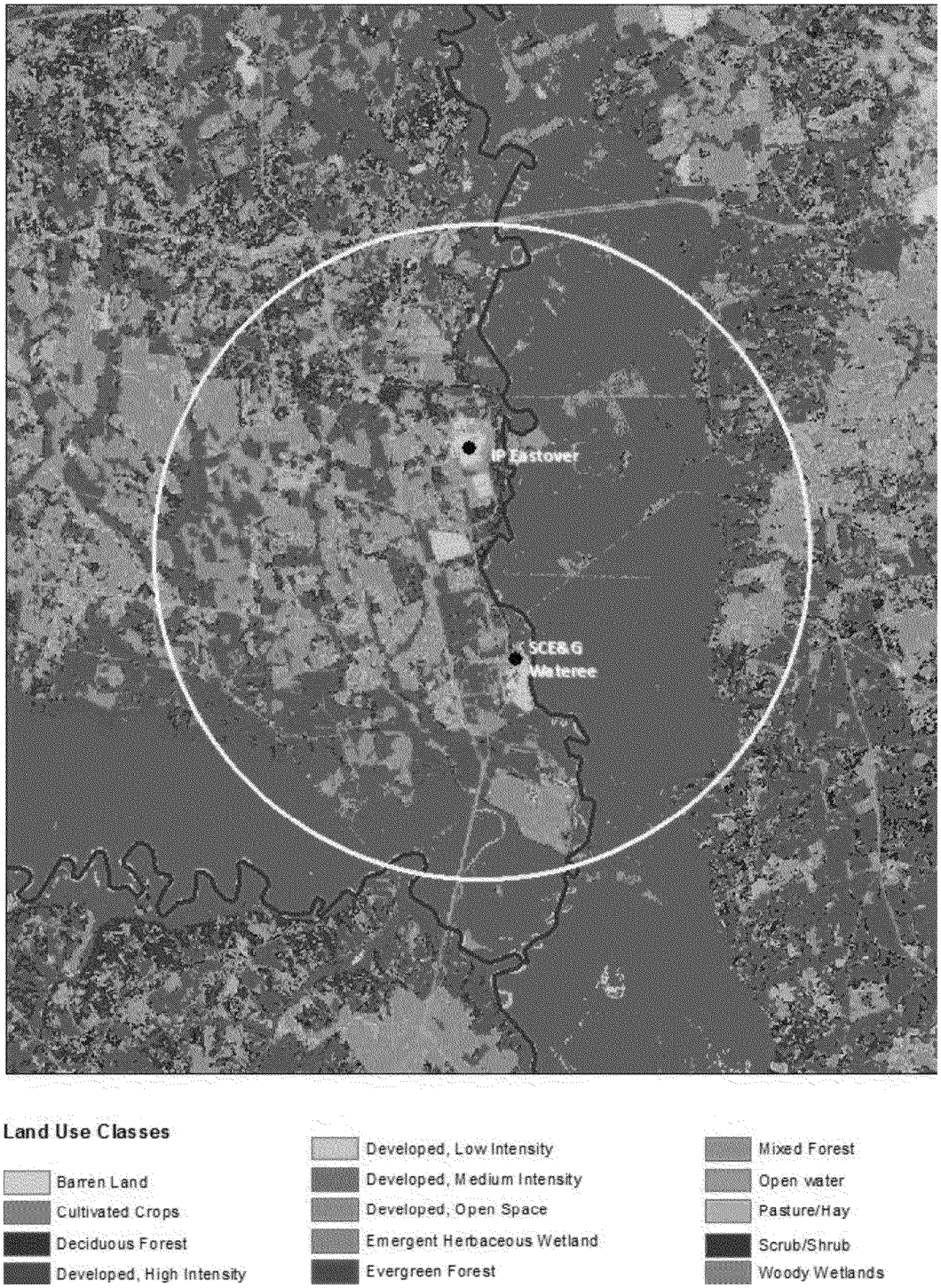

Figure 2 Land use surrounding SCE&G Wateree Station and IP Eastover Mill with 10 km radius circle

Figure 3 Area surrounding SCE&G Wateree Station and IP Eastover Mill with 10 km radius circle

Figure 4 Area surrounding SCE&G Wateree Station with 1 km radius circle

Figure 5 Area surrounding IP Eastover Mill with 1 km radius circle

1.5 Nearby Facilities

The EPA EnviroMapper[2] web interface was used to help identify stationary sources of air emissions located near SCE&G Wateree Station and IP Eastover Mill. EnviroMapper is linked to EPA's Air Facility System (AFS), which contains emissions and compliance information on stationary air pollution point sources regulated by EPA, state, and local air regulatory agencies. Searches were conducted to identify point sources located within 5 miles of either facility.

The following nearby facilities were identified:

- Kemira/Finnchem 200 Wateree Station Road, a sodium chlorate production facility,
- Kemira/Fennchem 191 Wateree Station Road, a facility that conducts anode coating and metal etching processes,
- Glasscock Company Plant 4, a ready-mix concrete manufacturing facility, and
- Specialty Minerals Inc., a facility that manufactures calcium carbonate and which is collocated at IP Eastover Mill.

Figure 6 shows the approximate location (based on coordinates in AFS) of these nearby facilities relative to SCE&G Wateree Station and IP Eastover Mill. Circles with radii of 1 km and 3 km surrounding each primary facility are also plotted to help establish scale.

Glasscock Company Plant 4 is a minor facility and does not emit SO_2. Therefore, it was eliminated from further consideration. The Kemira facility at 191 Wateree Station Road has no permitted sources of SO_2 emissions and was also eliminated from further consideration.

The Kemira facility at 200 Wateree Station Road accepted a sulfur in oil limit (0.05%) in its Conditional Major Permit to avoid being a major source. The resulting potential to emit from its boilers is 4.98 pounds per hour (lb/hr) or 21.8 tons per year (TPY) on an annual basis. This facility was retained for further consideration.

[2] http://www.epa.gov/emefdata/em4ef.home

The Specialty Minerals, Inc. facility is physically located contiguous to the IP Eastover Mill and produces precipitated calcium carbonate for use in IP's papermaking process. The resulting potential to emit from its carbonators is 2.49 lb/hr (10.91 TPY) on an annual basis. This facility was retained for further consideration.

Figure 6 Nearby facilities to SCE&G Wateree Station and IP Eastover Mill with 1 km and 3 km radius circles

2 Model Selection

AERMOD Version 16216r was used for the cumulative impact analysis for determining the appropriate attainment designation of the area surrounding SCE&G Wateree Station and IP Eastover Mill with respect to the 1-hour NAAQS for SO_2. AERMOD is recommended in the EPA "*Guideline on Air Quality Models*" for a wide range of near-field applications in all types of terrain. In addition, AERMOD contains the PRIME building downwash algorithm, which accounts for aerodynamic building downwash effects. AERMOD was run using current regulatory default options to model all sources.

The air quality dispersion modeling analyses account for potential aerodynamic building downwash effects for all modeled stacks at SCE&G Wateree Station and IP Eastover Mill. Building parameters needed by AERMOD to model potential building downwash effects were obtained using the latest version (04274) of the EPA Building Profile Input Program for PRIME (BPIPPRIME).

3 Modeling Domain

3.1 Determination of Sources to Include

3.1.1 Primary Sources

The modeling domain for the Eastover, SC SO_2 attainment area designation modeling analysis focuses on the two primary facilities that are the main subject of this modeling report, namely SCE&G Wateree Station and IP Eastover Mill. Under the DRR, a source subject to its requirements (i.e., an "applicable source") is one with actual SO_2 emissions of 2,000 TPY or more or otherwise identified by an air agency as requiring air quality characterization.[3] These two facilities were identified by DHEC BAQ as having actual SO_2 emissions for the most recent calendar year in excess of 2,000 TPY and thus are large enough to require modeling to help establish the attainment status of the surrounding area with respect to the 1-hour NAAQS for SO_2. At the request of DHEC BAQ, this report was prepared for a joint modeling analysis inclusive of both facilities.

3.1.2 Nearby Sources

The procedures used in identifying other secondary facilities to include explicitly in the dispersion modeling analysis are described below, along with sources excluded from the area designation modeling.

Current modeling guidance in the TAD states that the process of determining which nearby sources to include in the attainment area designation modeling should make use of professional judgment. Guidance in the TAD and in the referenced clarification memos states that the "*number of sources to explicitly model should generally be small*." [4]

[3] In this report, the term "principal source" is used in place of "applicable source" to provide further clarity in distinguishing the applicable sources to the additional sources ("nearby" or "background" sources) that were considered for inclusion in the cumulative impact analysis.

[4] U.S. EPA (2013) p.7

The applicable guidance in the TAD and clarification memos also mentions that any nearby sources that are expected to cause a significant concentration gradient in the vicinity of the primary sources being modeled should be included in the area designation modeling and that the impacts of any other sources should be incorporated via a consideration of background air quality concentrations.

Although some regulatory agencies have informally established minimum source emission rate thresholds below which nearby sources do not need to be explicitly included in the area designation modeling, neither EPA nor DHEC BAQ has yet done so. Consequently, a variety of considerations and technical justifications were used to select the background sources included in the cumulative impact analysis.

3.1.3 Screening Area

For the modeling, a screening area extending 50 km from each of the two primary sources was used to identify other potential nearby sources for inclusion in the analysis. Sources beyond 50 km are very unlikely to cause or contribute to a violation of the NAAQS in the vicinity of the primary sources or to cause a significant concentration gradient in the vicinity of the primary sources.

3.1.4 Screening Procedures – Initial Consideration of Emissions and Proximity

Actual emission rates (when available) and proximity to the primary sources were factors that were considered for including or excluding potential nearby sources within the screening area. Actual emission rates are appropriate for use in determining sources to include or exclude because of the focus of the area designation modeling, i.e., on estimating concentrations that would be actually measured at ambient air quality monitors.

Proximity to the primary sources is also a factor to consider for several reasons. First, the farther away a candidate source is from the primary sources, the less likely it is that the candidate source would have a significant contribution to a predicted violation of the NAAQS

due to the primary sources (or that the primary sources would have a significant contribution to predicted violations caused by the candidate source). In addition, in the additional clarification memo, EPA references a general "rule of thumb" that the distance to a maximum 1-hour predicted impact is typically on the order of 10 times the stack height and that the region of significant concentration gradients in flat terrain is on the same scale. Finally, EPA states that the process of identifying nearby sources to include in a cumulative impact analysis "*should focus on the area within about 10 kilometers of the project location in most cases*" and that the "*routine inclusion of all sources within 50 kilometers…is likely to produce an overly conservative result in most cases.*"[5]

DHEC BAQ provided county-by-county spreadsheets listing current allowable annual emissions for all facilities with air permits. Initial screening was conducted using these data to ensure that all facilities with current air permits would be considered. These data were first processed to identify the facilities that are located within 50 km of either Wateree Station or the Eastover Mill. These facilities are shown in Figure 7.

[5] http://www.epa.gov/ttn/scram/guidance/clarification/Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf p.16

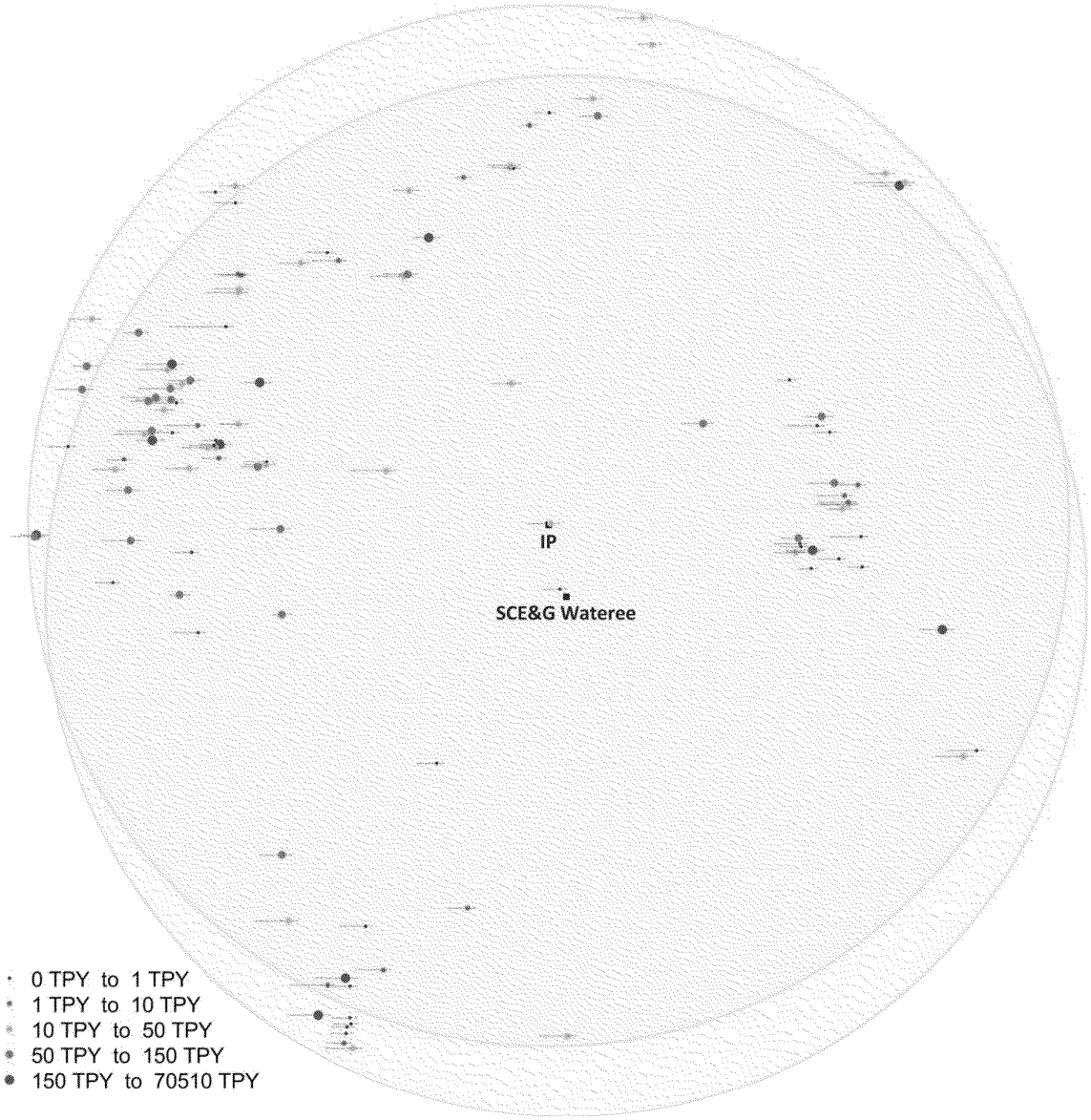

Figure 7 All permitted facilities within 50 km of IP Eastover Mill and SCE&G Wateree

Figure 7 shows that most of the nearby facilities that are candidates for inclusion in the modeling analysis are relatively distant from the primary sources, and some are only within the screening area for one of the two primary sources. Although distance is one factor to consider when selecting sources, the magnitude of their SO_2 emission rates is another.

While the background source screening analysis presented here was performed for 2012-2014, it is assumed that the conclusions from 2012-2014 can also be generally applied for the modeled period 2014-2016.

Actual annual SO_2 emission rates for the years 2012, 2013, and 2014 were obtained from DHEC BAQ for each of the candidate nearby facilities. Figure 8 shows the candidate sources with 2014 emissions greater than 1 TPY and is coded to reflect the actual annual facility-wide emission rate in 2014. The primary sources, each of which has actual annual SO_2 emission rates exceeding 2,000 TPY, are denoted by the large white circles. Invista SARL (Invista) and CMC Steel South Carolina, whose actual annual SO_2 emission rates were between 100 TPY and 1,000 TPY, are depicted by smaller purple circles. Sources with actual annual SO_2 emission rates greater than 10 TPY but less than 100 TPY are depicted by smaller blue circles. Finally, sources with actual annual SO_2 emission rates greater than 1 TPY but less than 10 TPY are depicted by still smaller yellow circles.

Figure 8 shows that the candidate nearby sources with the largest annual SO_2 emission rates, such as Invista and CMC Steel South Carolina, are located in the outer regions of the 50 km screening area.

Figure 9 is a pie chart showing the relative actual SO_2 emissions in 2014 from sources within the screening area. Approximately 92% of the SO_2 emissions are from the two primary sources, SCE&G Wateree Station (~57%) and IP Eastover Mill (~35%). Actual emissions were not available for two nearby facilities discussed earlier, Specialty Minerals, Inc. and Kemira. Consequently, their potential to emit for SO_2 was used instead in constructing the pie chart.

Figure 10 and Figure 11 show the regions within 20 km of SCE&G Wateree Station and IP Eastover Mill, respectively. In each figure, circles with radii of 10 km and 20 km from the primary source are plotted along with locations of nearby sources that had actual emissions exceeding 1 TPY for SO_2. There are no such sources within 20 km of Wateree Station. The only such source within 20 km of IP Eastover Mill is Northeast Landfill, a fairly small source of SO_2. Figure 10 and Figure 11 do not show the locations of Specialty Minerals, Inc. or Kemira (Finnechem USA). These site locations are shown in Figure 6.

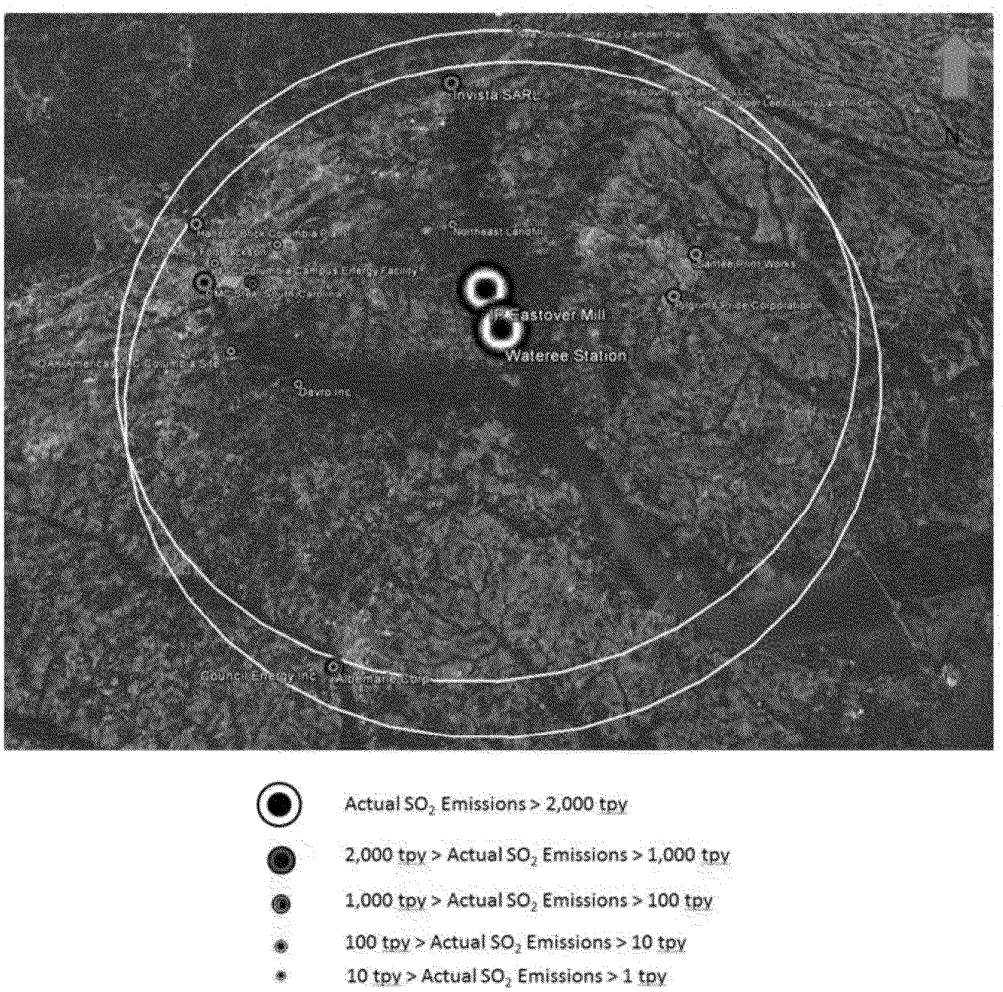

Figure 8 Candidate sources with emissions greater than 1 TPY located within 50 km of the primary sources

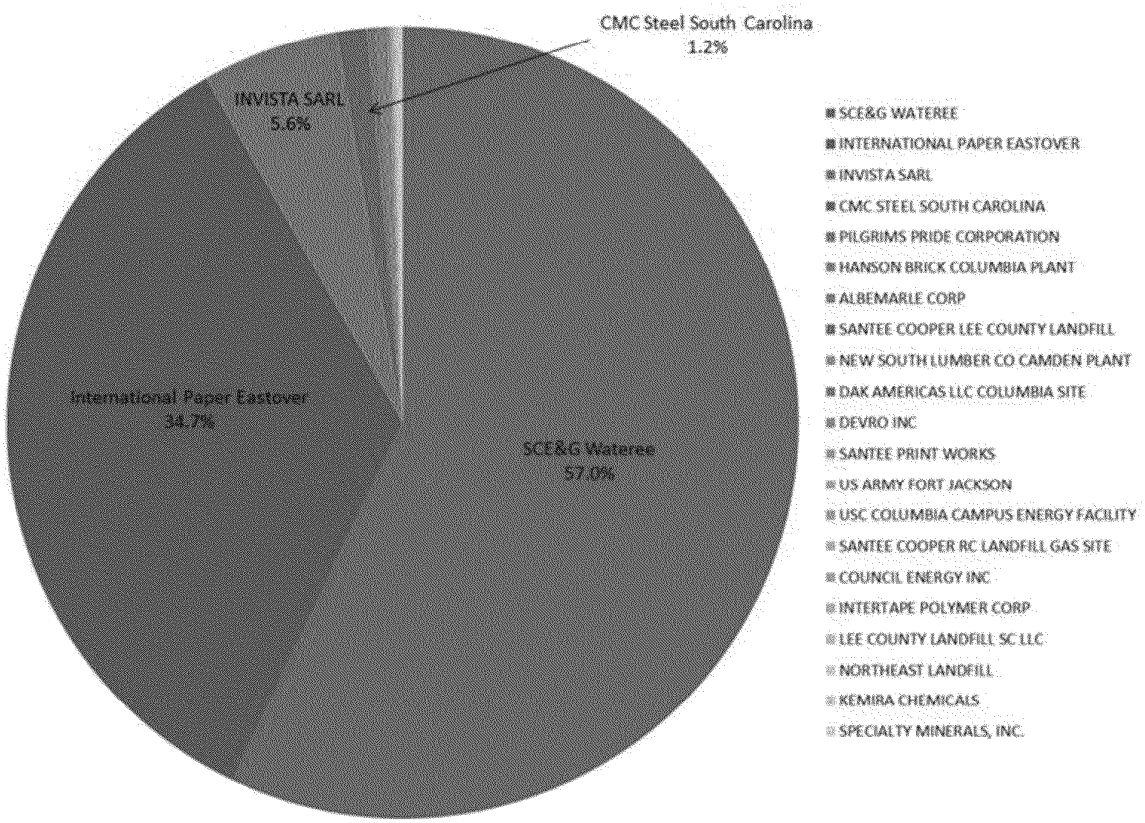

Figure 9 Relative 2014 SO_2 emissions for sources greater than 1 TPY within screening area

Figure 10 Sources nearest to SCE&G Wateree Station (10 km and 20 km radius circles)

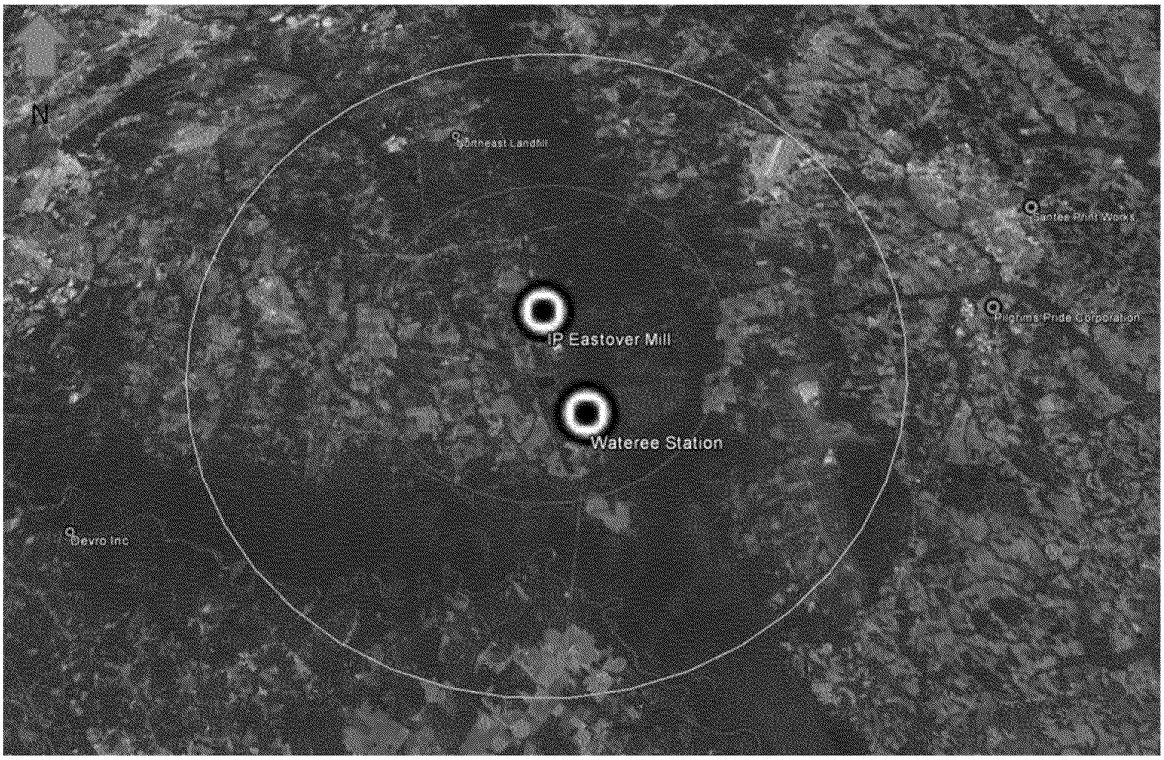

Figure 11 Sources nearest to IP Eastover Mill (10 km and 20 km radius circles)

3.1.5 20D Methodology

Although the initial consideration of emission rates and proximity to the primary sources suggested that few, if any, nearby sources need to be included in the cumulative impact analysis, an objective method was used to exclude some of the sources within the screening area.

A method commonly used and recommended by DHEC BAQ for screening nearby sources for inclusion in a cumulative impact analysis is the "20D" methodology. Originally developed by the North Carolina Department of Environment and Natural Resources, the 20D method allows for candidate nearby sources to be excluded from a cumulative analysis if their facility-wide emission rates, in tons per year, are less than 20D, where D is the distance in km between the candidate nearby source and the primary source. The 20D method was used with facility-wide annual emission rates from 2014 for each candidate source.

Although actual annual emission rates from 2014 were ultimately used in the 20D screening of sources, an initial 20D screening analysis was conducted using current allowable annual emissions provided by DHEC BAQ for facilities with air permits in each county. This initial screening was conducted to ensure that all facilities with current air permits would be considered.

The distances from each off-site facility to Wateree Station and to IP Eastover were calculated, and any facilities more than 50 km from both Wateree Station and IP Eastover were eliminated from further consideration. Table 3 lists all permitted sources within 50 km of either Wateree Station or IP Eastover, allowable annual SO_2 emissions in TPY, the calculated distances from the two principal sources, and the results of the initial 20D screening analyses. All permitted facilities within 50 km of either of the two principal sources are shown in Figure 7.

Next, the 20D methodology using annual allowable emissions was used to determine which facilities to exclude from the cumulative impact analysis. As shown in Table 3, all but six facilities (not including Wateree Station and IP Eastover) were excluded based on annual allowable emissions.

For four of the remaining sources (Santee Printworks, DAK, Columbia Energy Center, and SCE&G Coit), actual annual SO_2 emissions were obtained from information provided by DHEC BAQ. The 20D analysis was then repeated for the remaining facilities using actual annual SO_2 emissions from 2014. Emissions from 2014 are most representative of current operations. The results in Table 3 show that if actual annual facility-wide SO_2 emissions for 2014 are used in the 20D calculations, these four sources can be excluded from the cumulative impact analysis.

Actual annual emissions were not available for two sources, Specialty Minerals, Inc. and Kemira Chemicals.

Specialty Minerals, Inc. is collocated with IP Eastover Mill and will be included in the cumulative impact analysis.

Kemira Chemicals comes close to screening out with 20D when using allowable SO_2 emissions (20D = 20.2 < 21.81 TPY) which are based on a sulfur in oil limit of 0.05%. However, information provided by DHEC BAQ indicates that Kemira Chemicals is firing ultra-low sulfur diesel with a maximum sulfur content of 15 ppm (0.0015%). If the calculations are revised to account for the actual fuel used, the resulting actual SO_2 emission rate of 0.727 TPY allows Kemira Chemicals to screen out with 20D. Therefore, Kemira Chemicals was excluded from the cumulative impact analysis.

Table 3 Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions: EXCLUDE for IP	Based on Allowable Emissions: EXCLUDE for SCE&G	2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions: EXCLUDE for IP	Based on 2014 Actual Emissions: EXCLUDE for SCE&G
SCE&G Wateree	**1900-0013**	**Richland**	**70,509.24**	**534978.0**	**3742833.5**	**7.0**	**0.0**	**140.7**	**0.0**	**NO**	**NO**	**3531.43**	**5548.07**	**6550.28**	**NO**	**NO**
International Paper - Eastover	**1900-0046**	**Richland**	**15,279.63**	**533448.1**	**3749698.7**	**0.0**	**7.0**	**0.0**	**140.7**	**NO**	**NO**	**3737.48**	**3373.68**	**3315.23**	**NO**	**NO**
Specialty Minerals, Inc.	**1900-0145**	**Richland**	**10.91**	**533447.4**	**3749913.2**	**0.2**	**7.2**	**4.3**	**144.9**	**NO**	**YES**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Santee Print Works	2140-0003	Sumter	2,683.42	562763.5	3753793.2	29.6	29.9	592.0	597.4	NO	NO	0.17	4.70	32.82	YES	YES
DAK	0460-0029	Calhoun	2,683.18	499024.9	3747188.1	34.5	36.2	690.3	724.3	NO	NO	2.61	6.84	5.47	YES	YES
Columbia Energy Center	0460-0024	Calhoun	1,190.05	498364.8	3747719.9	35.1	36.9	702.8	738.8	NO	NO	0.76	2.05	2.00	YES	YES
SCE&G Coit	1900-0132	Richland	1,150.63	495450.0	3757210.0	38.7	42.1	774.7	841.2	NO	NO	0.14	0.14	0.05	YES	YES
Kemira Chemicals	1900-0172	Richland	21.81	534356.4	3743627.2	6.1	1.0	122.8	20.2	YES	NO		0.727		YES	YES
Trinity Industries, Inc.	0460-0023	Calhoun	0.02	522535.0	3726867.0	25.3	20.2	506.1	404.8	YES	YES					
SC Air National Guard-McEntire Joint NGB	1900-0250	Richland	10.21	517688.0	3754987.0	16.6	21.1	332.5	422.7	YES	YES					
Northeast Landfill	1900-0178	Richland	23.70	529700.0	3763388.0	14.2	21.2	283.9	424.4	YES	YES					
Shaw Air Force Base	2140-0004	Sumter	97.60	548122.2	3759592.4	17.7	21.3	354.0	426.0	YES	YES					
EMS Grivory America	2140-0054	Sumter	46.16	556961.2	3747135.2	23.7	22.4	473.0	448.0	YES	YES					
Kiln Direct, Inc.	2140-0142	Sumter	75.78	557257.0	3748537.2	23.8	23.0	476.7	460.0	YES	YES					
International Paper - Sumter	2140-0102	Sumter	0.04	557416.5	3747991.2	24.0	23.0	480.6	460.5	YES	YES					
Textilease Corporation	2140-0117	Sumter	0.33	557488.5	3747701.2	24.1	23.0	482.5	460.6	YES	YES					
Cooper Tools	2140-0022	Sumter	0.03	558462.0	3745602.0	25.3	23.6	506.9	472.9	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions		2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions	
										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
Sumter Heat & Power, LLC	2140-0149	Sumter	2.32	558576.0	3747209.0	25.3	24.0	505.0	480.0	YES	YES					
Pilgrims Pride Corporation	2140-0006	Sumter	374.45	558608.7	3747373.0	25.3	24.1	505.4	481.3	YES	YES					
Peace Textile America	2140-0110	Sumter	0.56	561131.0	3746550.0	27.9	26.4	557.2	528.3	YES	YES					
Devro	0460-0003	Calhoun	99.18	507652.0	3741223.2	27.2	27.4	543.1	547.5	YES	YES					
Carolina Filters	2140-0111	Sumter	18.88	561504.0	3751316.0	28.1	27.8	562.0	557.0	YES	YES					
Tuomey Regional Medical	2140-0050	Sumter	56.68	560697.0	3753809.0	27.6	28.0	551.1	559.3	YES	YES					
Westinghouse Electric Company	1900-0050	Richland	86.00	507506.2	3749420.2	25.9	28.3	518.9	565.0	YES	YES					
Carolina Furniture Works, Inc	2140-0014	Sumter	3.93	561675.3	3752603.0	28.4	28.4	567.5	568.6	YES	YES					
Florence Concrete Products	2140-0061	Sumter	25.99	562020.0	3751752.0	28.6	28.5	572.9	569.5	YES	YES					
Nova Molecular Technologies, Inc.	2140-0150	Sumter	35.46	562048.0	3751753.0	28.7	28.5	573.5	570.0	YES	YES					
City of Sumter	2140-0118	Sumter	0.04	563360.0	3745756.0	30.2	28.5	603.4	570.6	YES	YES					
Giant Resource Recovery (GRR!)	2140-0038	Sumter	4.82	562065.5	3751962.2	28.7	28.6	574.1	571.7	YES	YES					
Continental Tire the Americas, LLC	2140-0147	Sumter	0.35	563261.0	3748673.0	29.8	28.9	596.6	577.6	YES	YES					
Caterpillar Precision Pin Products	2140-0125	Sumter	0.01	559070.0	3759371.3	27.4	29.2	547.7	584.4	YES	YES					
Becton-Dickinson	2140-0018	Sumter	0.04	560258.0	3758749.0	28.3	29.9	565.9	597.5	YES	YES					
Garnay, Inc.	2140-0060	Sumter	0.00	556402.0	3763723.0	26.9	29.9	538.0	598.5	YES	YES					
Madison Industries	2140-0047	Sumter	2.32	563001.0	3753630.0	29.8	30.0	596.3	600.6	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions		2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions	
										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
CR Jackson Inc	9900-0254	PORTABLE	101.62	559517.0	3760234.0	28.1	30.1	562.3	601.6	YES	YES					
CameronLumber Co	0460-0001	Calhoun	1.76	525501.0	3712935.0	37.6	31.4	752.3	627.3	YES	YES					
American-Italian Pasta	1900-0130	Richland	46.25	506130.0	3755590.0	27.9	31.5	558.9	630.9	YES	YES					
MARS PETCARE US, INC.	1900-0083	Richland	0.96	506217.7	3755888.3	27.9	31.6	558.5	631.7	YES	YES					
Jushi (USA), Ltd.	1900-0284	Richland	86.90	505334.7	3755382.3	28.7	32.2	573.6	643.8	YES	YES					
Santee Cooper Richland Co. Landfill	1900-0224	Richland	12.91	519338.5	3773606.8	27.8	34.5	555.2	690.4	YES	YES					
Richland County Landfill	1900-0148	Richland	94.83	519723.0	3773825.0	27.8	34.5	555.1	690.9	YES	YES					
Starbucks Coffee Company	0460-0027	Calhoun	0.20	499610.7	3739491.3	35.3	35.5	706.9	710.5	YES	YES					
WJBD VA Hospital	1900-0023	Richland	19.97	503456.9	3759519.5	31.6	35.7	631.2	713.3	YES	YES					
Fort Jackson	1900-0016	Richland	504.88	505531.6	3763477.0	31.1	36.0	622.6	719.2	YES	YES					
Hospital Services	1900-0100	Richland	1.45	501599.0	3756274.5	32.5	36.0	650.4	719.7	YES	YES					
Grant Clarendon, Inc	0680-0046	Clarendon	247.04	571067.4	3739758.8	38.9	36.2	778.2	724.4	YES	YES					
Eastman Chemical	0460-0030	Calhoun	0.26	498996.1	3747157.2	34.5	36.2	690.9	724.8	YES	YES					
Anchor Continental	1900-0033	Richland	365.25	501695.8	3757600.6	32.7	36.4	654.4	728.2	YES	YES					
Waste 2 Energy	1900-0263	Richland	12.88	501296.0	3757291.5	33.0	36.7	660.7	733.1	YES	YES					
REA Construction Co	9900-0088	PORTABLE	76.21	507641.0	3718105.0	40.8	36.9	815.9	737.2	YES	YES					
SMI-Owens Steel Company	1900-0176	Richland	0.00	501119.7	3757491.8	33.3	36.9	665.1	737.9	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions: EXCLUDE for IP	Based on Allowable Emissions: EXCLUDE for SCE&G	2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions: EXCLUDE for IP	Based on 2014 Actual Emissions: EXCLUDE for SCE&G
Sea Hunt Boats	1900-0234	Richland	0.04	501320.0	3757960.0	33.2	36.9	663.5	738.0	YES	YES					
Welchem US	1380-0017	Kershaw	184.57	521759.3	3777410.7	30.1	37.0	601.5	740.4	YES	YES					
The Regional Medical Center	1860-0063	Orangeburg	0.53	515723.2	3711213.0	42.4	37.0	847.4	740.4	YES	YES					
Carben	9900-0447	PORTABLE	76.21	497844.0	3743087.0	36.2	37.1	724.3	742.7	YES	YES					
IBP Carolina Cooled Meats	1900-0144	Richland	23.54	500556.2	3757274.3	33.8	37.3	675.1	746.6	YES	YES					
City of Columbia WWTP	1900-0021	Richland	12.70	498722.5	3755202.0	35.2	38.3	703.2	766.1	YES	YES					
Clemson Univ. Livestock Lab	1900-0048	Richland	6.92	513082.2	3776527.4	32.6	39.0	651.4	780.1	YES	YES					
Associated Asphalts Columbia, LLC	9900-0025	PORTABLE	6.26	499559.0	3759400.0	35.3	39.1	705.0	782.0	YES	YES					
Husqvarna Outdoor Products	1860-0043	Orangeburg	2.16	517380.3	3707046.3	45.6	39.9	911.6	797.6	YES	YES					
FN Manufacturing, Inc.	1900-0052	Richland	0.20	512027.5	3775896.5	33.8	40.2	676.8	805.0	YES	YES					
Carolina Ceramics, Inc.	1900-0007	Richland	19.99	509448.6	3774857.1	34.8	41.0	695.4	819.1	YES	YES					
Orangeburg Dept. of Public Utilities	1860-0073	Orangeburg	34.43	508301.0	3711707.0	45.6	41.0	911.2	819.9	YES	YES					
Consolidated Systems Inc	1900-0040	Richland	0.14	497152.3	3758716.3	37.4	41.0	748.0	820.5	YES	YES					
Clarendon Memorial Hospital	0680-0024	Clarendon	18.92	573123.0	3727549.5	45.4	41.1	908.8	821.9	YES	YES					
Shawmut	1380-0073	Kershaw	0.01	529884.0	3784042.0	34.5	41.5	690.6	830.4	YES	YES					
Unimin	1380-0016	Kershaw	1.89	525100.0	3783180.0	34.5	41.5	690.1	830.8	YES	YES					
PowerSecure, Inc.	1380-0062	Kershaw	4.16	529538.0	3784117.0	34.6	41.6	692.8	832.8	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions: EXCLUDE for IP	Based on Allowable Emissions: EXCLUDE for SCE&G	2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions: EXCLUDE for IP	Based on 2014 Actual Emissions: EXCLUDE for SCE&G
Providence Hospital	1900-0061	Richland	69.69	498817.1	3763689.3	37.4	41.7	747.0	834.9	YES	YES					
Jarden Applied Materials (Formerly Shakespeare Monofilament)	1900-0036	Richland	0.03	502282.0	3768819.0	36.6	41.8	731.3	835.3	YES	YES					
Kawashima Textile USA	1380-0048	Kershaw	12.87	529638.0	3784321.0	34.8	41.8	696.6	836.6	YES	YES					
USC Central Energy Facilities	1900-0143	Richland	0.65	497549.7	3761555.9	37.8	41.8	756.1	837.0	YES	YES					
HBD Industries	1380-0018	Kershaw	46.43	519881.3	3781913.4	35.0	41.9	699.1	837.9	YES	YES					
Southwoods Lumber & Millwork	0680-0005	Clarendon	0.57	574369.0	3728097.0	46.3	42.1	925.5	841.1	YES	YES					
Orangeburg County Biomass	1860-0123	Orangeburg	11.52	535055.0	3700750.0	49.0	42.1	979.5	841.7	YES	YES					
Lanier Construction Company	9900-0035	PORTABLE	67.45	493137.0	3748295.0	40.3	42.2	806.7	843.9	YES	YES					
Benedict College	1900-0211	Richland	26.02	498042.1	3763372.3	38.0	42.3	759.1	845.2	YES	YES					
South Carolina State University	1860-0065	Orangeburg	279.40	513786.0	3706257.0	47.7	42.3	953.7	845.4	YES	YES					
Office of General Services energy fac.	1900-0162	Richland	131.05	497000.0	3761842.0	38.4	42.5	768.4	849.4	YES	YES					
CMC Steel SC	1560-0087	Lexington	317.02	495229.9	3757965.9	39.1	42.5	782.0	850.6	YES	YES					
ALSCO	1900-0239	Richland	27.99	496331.0	3760863.0	38.8	42.6	775.2	852.9	YES	YES					
Cactus Family Farms	1860-0007	Orangeburg	0.04	514190.0	3705481.0	48.2	42.7	964.6	855.0	YES	YES					
Sloan Construction Company-Cayce	9900-0060	PORTABLE	76.21	495154.0	3758872.0	39.4	42.9	787.6	858.6	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions: EXCLUDE for IP	Based on Allowable Emissions: EXCLUDE for SCE&G	2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions: EXCLUDE for IP	Based on 2014 Actual Emissions: EXCLUDE for SCE&G
Office of General Service DHEC lab	1900-0109	Richland	23.91	503495.0	3772060.0	37.4	43.0	747.6	859.2	YES	YES					
Palmetto Baptist Medical Center	1900-0044	Richland	112.51	496930.0	3762909.0	38.8	43.0	776.7	860.4	YES	YES					
Office of General Services	1900-0197	Richland	14.87	503550.5	3772416.5	37.5	43.2	751.0	863.2	YES	YES					
REA Construction Co	9900-0083	PORTABLE	127.02	492890.0	3753120.0	40.7	43.3	814.0	866.5	YES	YES					
Southeastern Concrete Products	1560-0063	Lexington	46.65	494475.0	3758564.0	40.0	43.5	799.4	869.0	YES	YES					
Diamond Pet Food	1560-0050	Lexington	0.18	491447.0	3744269.0	42.4	43.6	847.0	871.1	YES	YES					
City of Orangeburg Dept of Public Utilities	1860-0117	Orangeburg	1.44	512050.0	3705591.0	49.0	43.7	980.5	874.7	YES	YES					
Office of General Services Cola. Bldg.	1900-0161	Richland	74.36	495555.0	3762058.0	39.9	43.9	797.2	877.2	YES	YES					
Providence Northeast	1900-0202	Richland	9.99	503762.0	3773727.0	38.2	43.9	763.8	878.4	YES	YES					
Richland Memorial Hospital	1900-0062	Richland	213.74	497097.3	3765249.3	39.5	44.0	790.7	880.3	YES	YES					
Office of General Service DHEC	1900-0104	Richland	23.23	496666.0	3764710.0	39.7	44.1	794.5	882.4	YES	YES					
The Ritedose Corporation	1900-0137	Richland	8.37	503455.5	3773800.0	38.5	44.2	769.5	883.8	YES	YES					
Columbia Farms	1560-0121	Lexington	130.09	494809.1	3761710.3	40.5	44.4	809.3	887.7	YES	YES					
Backman Lumber	1560-0188	Lexington	1.00	492474.0	3756110.0	41.5	44.5	829.5	890.6	YES	YES					
Columbia Farms/OSI LP	1560-0115	Lexington	31.62	491623.0	3755101.0	42.2	45.1	843.5	901.1	YES	YES					
Federal Mogul Corp	1860-0094	Orangeburg	0.05	514185.2	3702462.9	51.0	45.4	1020.2	908.2	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions		2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions	
										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
Invista	1380-0003	Kershaw	3.93	531441.7	3788160.1	38.5	45.5	770.3	909.3	YES	YES					
Okonite Company	1860-0082	Orangeburg	0.06	514276.2	3701893.9	51.5	45.9	1030.1	917.5	YES	YES					
Mars Petcare US	1860-0090	Orangeburg	0.11	513914.2	3701597.0	51.9	46.3	1038.3	926.1	YES	YES					
DeRoyal Textiles	1380-0019	Kershaw	61.76	538003.4	3789042.5	39.6	46.3	792.1	926.2	YES	YES					
Oak-Mitsui, Inc.	1380-0038	Kershaw	0.19	533318.0	3789377.0	39.7	46.6	793.6	931.5	YES	YES					
SI Group (formerly Albemarle)	1860-0004	Orangeburg	167.68	511129.4	3702734.3	52.0	46.7	1040.0	933.1	YES	YES					
Trinity Industries	1860-0110	Orangeburg	0.02	513824.0	3700985.0	52.5	46.9	1050.4	937.8	YES	YES					
City of Orangeburg	1860-0085	Orangeburg	8.79	513640.2	3700074.0	53.4	47.8	1068.6	955.8	YES	YES					
Gulbrandsen Manufacturing	1860-0080	Orangeburg	32.94	514451.0	3699565.0	53.6	47.9	1072.2	957.8	YES	YES					
Kendall Company	1380-0001	Kershaw	36.66	537505.6	3790722.9	41.2	48.0	824.5	959.1	YES	YES					
Hanson Brick	1900-0010	Richland	97.17	493891.3	3768240.8	43.7	48.3	873.7	966.2	YES	YES					
Intertape Polymer Corp.	1900-0274	Richland	0.04	503222.0	3780724.0	43.3	49.4	866.3	988.8	YES	YES					
Akebono Brake Corp.	1560-0133	Lexington	0.82	487140.0	3757380.0	46.9	50.0	938.8	1000.0	YES	YES					
Lexington Medical Center	1560-0055	Lexington	122.07	488461.0	3762835.0	46.9	50.6	937.3	1012.7	YES	YES					
Arclin Surfaces	1900-0093	Richland	20.89	503192.2	3782356.4	44.5	50.7	890.4	1014.4	YES	YES					
Lee County Landfill SC, Inc	1540-0029	Lee	197.06	566932.0	3782360.0	46.8	50.8	935.5	1016.5	YES	YES					
Palmetto Paving	9900-0478	PORTABLE	17.08	565595.0	3783533.0	46.7	50.9	933.4	1018.6	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions		2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions	
										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
CR Jackson	9900-0036	PORTABLE	101.62	488894.0	3765056.0	47.1	51.2	942.5	1023.2	YES	YES					
US Silica, Inc.	1560-0005	Lexington	295.21	484067.6	3748816.0	49.4	51.3	987.8	1025.2	YES	YES					
Columbia Silica Sand, Inc	1560-0037	Lexington	65.26	483900.0	3748686.0	49.6	51.4	991.2	1028.2	YES	YES					
Santee Cooper Lee County Landfill Gas to Energy Facility	1540-0031	Lee	17.04	567509.6	3782655.4	47.4	51.4	947.9	1028.4	YES	YES					
Hueck Foils, Inc.	1900-0146	Richland	0.05	501275.0	3781767.0	45.4	51.5	908.5	1029.9	YES	YES					
SC Dept of Corrections	1900-0121	Richland	28.29	489370.0	3769550.0	48.3	52.9	966.8	1057.1	YES	YES					
SRE Kershaw	1380-0077	Kershaw	30.13	543200.0	3795916.0	47.2	53.7	944.7	1074.3	YES	YES					
New South Lumber Co. Inc.	1380-0025	Kershaw	13.86	542330.0	3798504.0	49.6	56.2	992.1	1123.1	YES	YES					

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Based on experience and best professional judgment, all other sources in the screening area, besides the two primary sources (SCE&G Wateree Station and IP Eastover Mill) and Specialty Minerals, Inc. were excluded from the cumulative impact analysis.

3.2 Receptor Grid

A Cartesian (rectangular) receptor network was used for the cumulative impact analysis for attainment area designation purposes. The network, described below, includes a series of nested grids roughly centered on each primary facility (SCE&G Wateree Station and IP Eastover Mill).

An inner grid of approximately 10,000 receptors with a spacing of 100m extends outward from each primary facility boundary to a distance of approximately 1 km and covers an area of approximately 7 km x 16.5 km. An intermediate grid of approximately 3,000 receptors with a spacing of 250m extends from the outer edge of the 100m spaced receptor grid out to a distance of approximately 5 km from the two facilities, and the outer boundary covers an area of approximately 15 km x 21 km. An outer grid of approximately 2,000 receptors with a spacing of 500m extends from the outer edge of the 250m spaced receptor grid out to a distance of approximately 10 km from the two facilities, and the outer boundary covers an area of approximately 25 km x 31 km. Receptors within the boundaries of SCE&G Wateree Station or IP Eastover Mill were excluded.

Additionally, receptors at a spacing of no greater than 25m were placed along each of the primary facility property boundaries, with approximately 350 receptors along the Wateree Station property boundary and approximately 1,250 receptors along the Eastover Mill property boundary. The property boundaries are defined in a manner consistent with prior modeling analyses that have been submitted to DHEC BAQ.

The resulting total number of receptors is approximately 17,000. A plot of the proposed receptor grid is shown in Figure 12. The receptor resolution used in the modeling meets or exceeds that recommended in DHEC BAQ guidance and in the TAD.

A close-up view of the SCE&G Wateree Station modeled ambient air boundary is shown in Figure 13. The ambient air boundary is comprised of the physical barrier of the Wateree River and fencing that is controlled/patrolled by security that is on-site 24 hours per day, 7 days per week (24/7). This ambient air boundary is the same as the ambient air boundary used in previous air dispersion modeling demonstrations.

A close-up view of the IP Eastover Mill modeled ambient air boundary is shown in Figure 14. The ambient air boundary is comprised of physical barriers, fencing, signage, and areas that are controlled/patrolled by mill security that is on-site 24/7. The Eastover property is large and diverse. In addition to paper manufacturing, the facility includes an integrated woodyard, extensive log storage, and an onsite landfill. Non-industrial land use within the property includes the employee training center, landscaped areas, agricultural fields, forestry test plots, and actively managed forestlands. The mill site is home to an extensive wildlife population. The Eastover Mill ambient air boundary includes all of these areas. Each portion of the ambient air boundary is described in more detail below.

The eastern portion of the ambient air boundary runs along the Wateree River. The river represents a physical barrier that restricts public access to the mill property which leads directly to the river bank. Along the river bank there is a sharp embankment with dense underbrush that is difficult to navigate and that acts as a strong deterrent to public access to mill property. Signs are installed at areas potentially accessible to the public and on the railroad right of way.

The southern portion of the ambient air boundary runs along a railroad that traverses the mill property from the river all the way to state highway 601. The mill owns property on both sides of the railroad right of way. The railroad also represents a physical barrier that restricts public access. The railroad right of way includes a steep embankment up from the Wateree River on the east side of the right of way along with a locked gate and no trespassing signs at the intersection of state highway 601. North of the railroad, there are locked gates, drainage canals, berms, and dense forest and underbrush in areas that are difficult to navigate, all of which act as strong deterrents to public access to mill property.

The southwestern portion of the ambient air boundary runs along state highway 601 from the railroad to the main plant entrance road. The mill property runs right up to state highway 601. This portion of the ambient air boundary is controlled by a locked gate and drainage canals that impede public access. There is also a considerable amount of plant personnel (including security) that patrol the main plant entrance 24/7. Trespassers along this portion of the ambient air boundary would be escorted off mill property by plant security.

The northwestern and northern portion of the ambient air boundary runs from the main plant entrance on state highway 601 north and around to the Wateree River. The mill owns multiple land parcels in this area, which are primarily dedicated to forestry and wildlife management. Public access to this area is controlled by a combination of physical barriers (including drainage canals, fencing, soil embankments, i.e. dense forest and underbrush), installed controls (fencing, locked gates and No Trespassing signs), and surveillance/patrol by mill security. These barriers make it difficult (and unlawful) for the public to gain access and spend prolonged amounts of time on the mill property. The adjacent properties owned by others are primarily forest lands and several residential properties; receptors will be placed on all adjacent properties.

Receptors were also placed at the location of the two nearest ambient SO_2 monitors (Parklane and Congaree Bluff).

Guidance in Section 4.2 of the TAD indicates that receptors are not required in areas, such as water bodies, where placement of a monitor would not be feasible. To be conservative, receptors in such areas were not excluded.

The AERMAP preprocessor (Version 11103) was used to obtain receptor elevations and hill heights for the receptors modeled in AERMOD. AERMAP was run with 30 meter National Elevation Dataset (NED) Digital Elevation Model (DEM) GeoTIFF format files obtained from the U.S. Geological Survey (USGS).

The modeling uses a Universal Transverse Mercator (UTM) coordinate system. Coordinates are in Zone 17N and the datum is NAD83.

The receptor grid was sized such that there are no predicted SO_2 concentrations near or above the NAAQS at any receptors near the edge of the grid. The receptor spacing is no greater than 100m in all areas where total predicted concentrations (including background concentrations) are within 10% of the NAAQS.

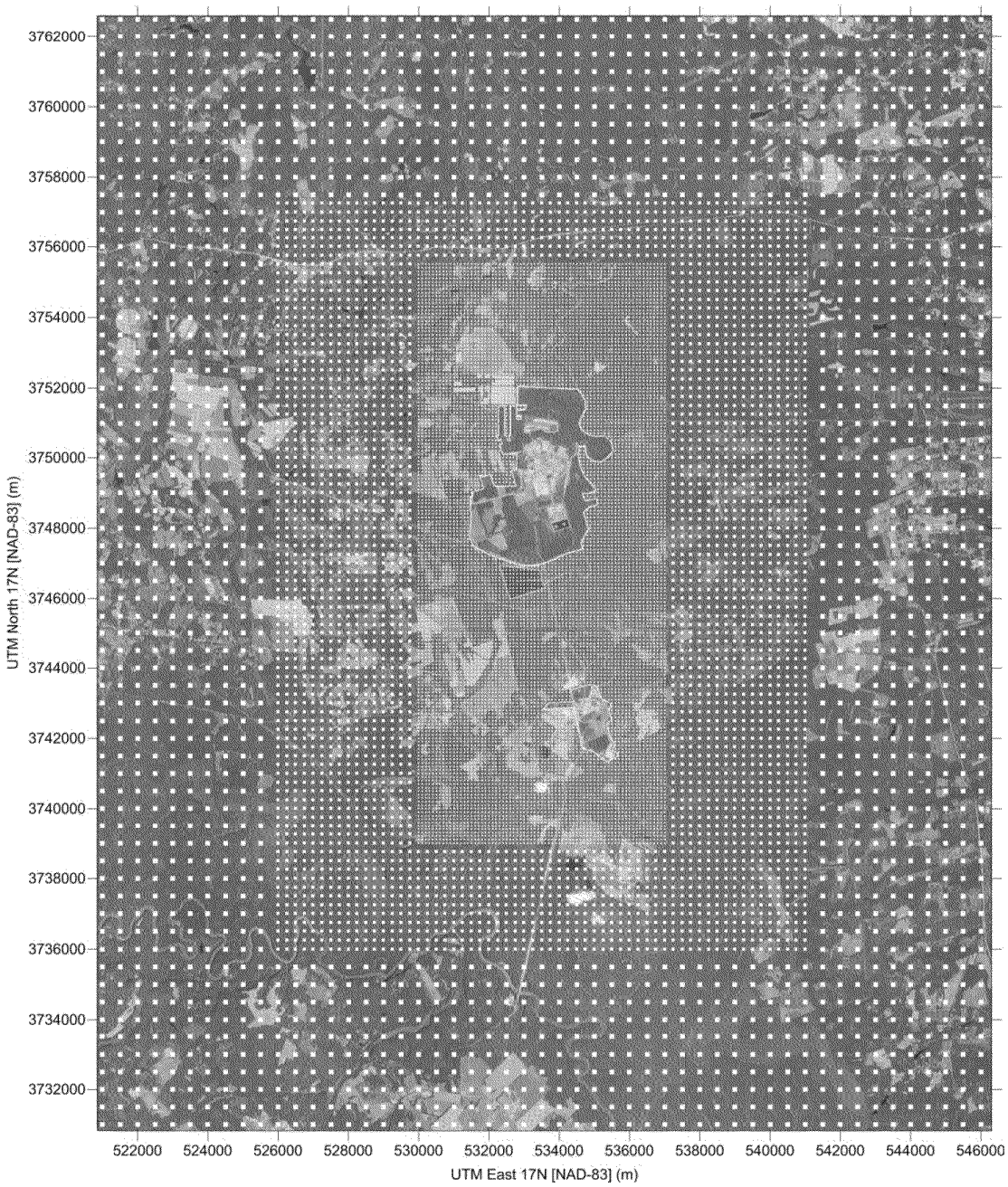

Figure 12 Plot of Cartesian and property boundary receptors

Figure 13 SCE&G Wateree Station ambient air boundary

Figure 14 IP Eastover Mill ambient air boundary

4 Emission Rates and Source Characterization

The emission rates used in the modeling analyses are listed below in Sections 4.1 and 4.2.

4.1 SCE&G Wateree Station Source Data

Table 4 SCE&G Wateree Station SO_2 Constant Emission Rates and Source Parameters

Stack ID	SO_2 Emission Rate (lb/hr)	SO_2 Emission Rate (g/s)	Stack Height (m)	Exit Velocity (m/s)	Stack Diameter (m)	Stack Temperature (K)
Wat1	Actual Hourly	Actual Hourly	91.44	Actual Hourly	5.89	Actual Hourly
Wat2	Actual Hourly	Actual Hourly	91.44	Actual Hourly	5.89	Actual Hourly
WatC	Actual Hourly	Actual Hourly	121.92 (Actual)	Actual Hourly	8.53	Actual Hourly
UB12	2,687.3	338.6	106.81 (GEP)	16.30	8.53	327.00
AB1	0.33	0.04	13.72	21.34	0.10	605.37

SCE&G Wateree Station was modeled using both actual hourly and constant emission rates. Following the January 13, 2017 permit revision, use of the FGD is no longer a voluntary permit condition. Presently and in future standard operations, the two main boilers exhaust through shared stack UB12 with all emissions controlled by the FGD. In past operations, however, emissions from the two main boilers could either exhaust directly from the uncontrolled dedicated main boiler stacks (Wat1 and Wat2), through the shared stack (WatC) controlled by the FGD, or some combination thereof. For the purposes of demonstrating that the area both was and will continue to be in attainment with respect to the 1-hour NAAQS for SO_2, SCE&G Wateree Station was modeled using actual hourly emission rates over the period 2014-2016 as well as with constant emission rates expected to be higher than any future actual emissions. Table 4 provides the SO_2 emission rates and stack parameters used for modeling SCE&G Wateree Station.

The constant modeled emission rate of 2,687.3 lb/hr for UB12 is lower than the maximum controlled potential to emit (PTE) of 3,339.5 lb/hr, but is expected to be higher than any future actual emissions. SCE&G has applied for and expects to receive a revised air permit from DHEC BAQ with a maximum emission rate limit of 2,687.3 lb/hr for stack UB12. The emission rate listed for AB1 represents uncontrolled PTE based on combusting No. 2 fuel oil with 0.0015% sulfur content by weight.

The WatC/UB12 actual stack height of 121.92m for the shared stack exceeds the GEP formula stack height of 106.81m listed. Actual stack height was used for the modeling analysis using actual emission rates, and GEP formula height was used for the constant emissions modeling analysis.

SCE&G Wateree Station includes three emergency generators. These are described in Table 1, are intermittent SO_2 emission sources, and were not included in the modeling per the March 1, 2011 additional clarification memo.

4.2 IP Eastover Mill Source Data

Table 5 IP Eastover Mill SO_2 Constant Emission Rates and Source Parameters

Stack ID	SO_2 Emission Rate (lb/hr)	SO_2 Emission Rate (g/s)	Stack Height (m)	Exit Velocity (m/s)	Stack Diameter (m)	Stack Temperature (K)
371A	11.04	1.39	53.89	10.70	1.31	329.82
372A	15.84	2.00	53.89	21.31	1.80	518.15
381C	4.20	0.53	75.99	6.49	1.40	349.26
382B	9.36	1.18	75.99	8.41	1.80	350.93
381A/501A	606.91	76.47	86.11	17.19	4.11	459.26
382A/331A	420.88	53.03	141.09	15.51	4.30	460.93
502A	971.00	122.34	141.09	20.79	2.90	464.82
96SRC*	0.83	0.105	16.80	12.53	0.60	344.30
97SRC*	0.83	0.105	16.80	12.53	0.60	344.30
98SRC*	0.83	0.105	16.80	12.53	0.60	344.30

* Carbonator sources from Specialty Minerals, Inc.

IP Eastover Mill was modeled using the constant SO_2 emission rates and stack parameters presented in Table 5.

4.2.1 Minor Contributors

The SO_2 emission rates for IP Eastover Mill presented in Table 5 represent the maximum potential emission rates for sources 371A (No. 1 Lime Kiln), 372A (No. 2 Lime Kiln), 381C (No. 1 Smelt Dissolving Tank), and 382B (No. 2 Smelt Dissolving Tank). These four stacks are relatively small emission sources.

Table 5 includes emissions from the three carbonators operated by Specialty Minerals, Inc. These sources (96SRC, 97SRC and 98SRC) operate within the IP Eastover Mill property and were included in the modeling. The stack heights modeled are shown in Table 5 and are the actual heights for each of these stacks. All of these stack heights are less than the GEP formula height.

Table 2 lists the annual emission rates and hours of operation over the last three years (2013-2015) for the insignificant stationary SO_2 emissions sources at the mill. The years 2013-2015 were used, as hourly runtime data were not available for 2012. As shown in Table 2, these sources have very low SO_2 emission rates and operate very infrequently. Therefore, they should not have any appreciable effect on 1-hour SO_2 ambient concentrations and were not included in the modeling. The only sources at the mill that were included in the modeling are shown in Table 5.

The IP Eastover mill includes two different systems for controlling NCG emissions to comply with regulatory requirements. The kraft pulping process generates total reduced sulfur (TRS) NCG that are odorous and require collection and treatment under the federal New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants (NESHAP) programs. These TRS compounds are treated by thermal oxidation, which converts the TRS compounds into SO_2. At IP Eastover Mill, the majority of TRS gases are collected into the Concentrated NCG System. Other TRS gases are collected into the Dilute NCG System. The treatment devices for these systems are binary; an NCG System can be treated in either one or the other but not simultaneously in both.

The remaining three stacks (381A/501A, 382A/331A, and 502A) have larger SO_2 emission rates and multiple operating modes that must be considered in order to correctly characterize the impact of facility emissions on ambient SO_2 concentrations.

4.2.2 Stack 381A/501A

The stack 381A/501A is a combined stack serving No. 1 Recovery Furnace (381A) and No. 1 Power Boiler (501A). The No. 1 Power Boiler is the primary control device for the mill's

Dilute NCG System and does not have add-on SO_2 controls. The emission rate presented in Table 5 for Stack 381A/501A is less than the maximum short-term emission rate for this stack allowed by the mill's Title V Permit, but is expected to be higher than any future actual emissions. There are two contributions to the SO_2 emission rate for source 501A (the No. 1 Power Boiler): combustion of dilute NCGs (which generates SO_2 from the oxidation of TRS compounds) and combustion of fuel.

In 2016, IP completed a significant project that reduced SO_2 emissions from No. 1 Power Boiler. DHEC construction permit No. 1900-0046-DN was issued to convert No. 1 Power Boiler from coal and residual oil to 100% natural gas only. With the startup of this project in December 2016, coal is no longer used as a fuel at the IP Eastover Mill and natural gas is the sole fuel for No.1 Power Boiler. Consequently, the emissions rate from fuel combustion assumes that the boiler is operating at its maximum heat input rate when firing natural gas.

Including SO_2 emissions from the combustion of Dilute NCGs in the No. 1 Power Boiler is the worst case from an ambient impacts perspective because this stack is much shorter (280 feet) than the stack for the backup dilute NCG treatment device, the No. 2 Power Boiler (460 feet). Neither source has an SO_2 scrubber. Model runs confirmed this assumption and are available on request.

Table 6 IP Eastover Mill Dilute NCG Treatment Location

Dilute NCG Treatment Location	Stack Height (ft)
No. 1 Power Boiler	280
No. 2 Power Boiler	460

4.2.3 Stack 382A/331A

The stack 382A/331A is a combined stack serving No. 2 Recovery Furnace (382A) and the NCG Incinerator (331A). The NCG Incinerator is the primary treatment device for the mill's Concentrated NCG System and is equipped with a packed-column SO_2 scrubber. For source

382A (the No. 2 Recovery Furnace), the modeled emission rate of 420.88 lb/hr is lower than the maximum short-term emission rate of 666 lb/hr allowed by the facility's Title V Permit but is expected to be higher than any future actual emissions. Zero SO_2 emission contribution is included in Table 5 from source 331A (the No. 2 NCG Incinerator) because it is more conservative in terms of offsite emission impacts to assume that the incinerator is not operating and the concentrated NCGs normally processed in this unit is being combusted in the backup incineration point (Source 502A, the No. 2 Power Boiler), because the backup incineration point is not equipped with add-on SO_2 controls. Model runs confirmed this assumption and are included in the electronic documentation.

To demonstrate it is more conservative to assume the concentrated NCGs are burned in the No. 2 Power Boiler (502A) as opposed to the NCG Incinerator (331A), modeling was performed for these two stacks using a unit emission rate of 1 g/s. This analysis method allowed a comparison of the normalized concentrations for each source in the form of the 1-hour SO_2 NAAQS (i.e. the 3-year averaged, 4th high, maximum daily, 1-hour concentration). The modeling was performed using the methodologies presented in this report and stack parameters listed in Table 5. The resulting normalized design concentrations are 0.57 µg/m3 per g/s for 502A and 0.44 µg/m3 per g/s for 382A/331A stacks. This indicates that the 502A stack has a 30% higher unit rate modeled concentration compared to the 382A/331A stack for an identical unit emission rate (1 g/s). These results affirm that assuming the concentrated NCGs are burned in the No. 2 Power Boiler (502A) as opposed to the NCG Incinerator (382A/331A) is the worst-case scenario for the purposes of the DRR modeling.

Table 7 IP Eastover Mill Concentrated NCG Treatment Location

Concentrated NCG Treatment Location	SO_2 Control Device	Stack Height (ft)
NCG Incinerator	Packed Column Caustic Scrubber	460
No. 2 Power Boiler	No add-on control	460

4.2.4 Stack 502A

The stack 502A serves No. 2 Power Boiler. The No. 2 Power Boiler is the backup treatment device for the mill's Concentrated NCG System and the Dilute NCG System and as noted above does not have add-on SO_2 controls. There are three contributions to the SO_2 emission rate for source 502A: fuel burning, concentrated NCG combustion, and rectified methanol combustion. For fuel burning, the emissions rate assumes that the unit is operating at its maximum heat input rate (500 MMBtu/hr) burning the worst-case fuel from an SO_2 emissions rate generation perspective (tire-derived fuel) at the short term emission rate allowed by the Title V Permit. The contribution from concentrated NCG combustion utilizes the maximum short-term emissions rate for this unit included in the facility's Title V permit, and the contribution for methanol combustion assumes that the unit is burning methanol at a maximum rate of 4 GPM.

4.2.5 Comparison of Modeled and Actual Emission Rates

Table 8 compares the modeled and 2014-2016 actual SO_2 emission rates from the No. 1 Recovery Furnace (381A) and No. 2 Recovery Furnace (382A). The data presented demonstrate that the modeled emission rates from these two sources were considerably and consistently higher than the actual emission rates during 2014-2016 and therefore conservative.

As shown in Table 5, the modeled emission rate from 381A/501A is 606.91 lb/hr and consists of emissions from the operation of the No. 1 Recovery Furnace (381A) and combustion of natural gas and dilute NCGs in the No. 1 Power Boiler (501A), as described in Section 4.2.2. The SO_2 emission rate associated with dilute NCG combustion in the IP Eastover Mill's Title V permit is 894 TPY (204.11 lb/hr), while the SO_2 emissions due to natural gas combustion are essentially negligible. Accordingly, the fraction of the 381A/501A modeled emission rate attributed to the No. 1 Recovery Furnace (381A) is 402.8 lb/hr. The maximum actual hourly emission rate (computed from recorded monthly values) over 2014-2016 was 21.89 lb/hr for 381A, which is significantly lower than the modeled emission rate of 402.8 lb/hr.

As described in Section 4.2.3, the modeled emission rate of 420.88 lb/hr from 382A/331A is due entirely to the operation of the No. 2 Recovery Furnace (382A) based on the conservative assumption that concentrated NCGs are combusted in the No. 2 Power Boiler (502A) and not

the NCG Incinerator (331A). The maximum actual hourly emission rate (computed from recorded monthly values) over 2014-2016 was 23.29 lb/hr for 382A, which is significantly lower than the modeled emission rate of 420.88 lb/hr.

Table 8 IP Eastover Mill 2014-2016 Actual Emission SO_2 Rates for 381A and 382A

Month-Year	Monthly Actual Emissions (tons/month)		Monthly Actual Operating Hours		Computed Hourly Emission Rate (lb/hr)	
	381A	382A	381A	382A	381A	382A
January 2014	3.05	8.55	744	734	8.20	23.29
February 2014	0.13	3.95	672	672	0.38	11.76
March 2014	1.28	4.30	743	743	3.45	11.55
April 2014	1.11	3.83	720	720	3.08	10.65
May 2014	0.13	5.39	744	735	0.36	14.49
June 2014	0.34	3.98	719	720	0.94	11.05
July 2014	0.14	4.23	744	744	0.37	11.36
August 2014	0.48	4.07	728	744	1.29	10.93
September 2014	0.13	4.12	720	720	0.36	11.44
October 2014	0.17	4.78	744	561	0.45	12.84
November 2014	0.13	4.44	720	720	0.36	12.33
December 2014	2.15	4.74	744	744	5.79	12.74
January 2015	0.90	4.93	744	744	2.42	13.25
February 2015	0.12	5.77	672	663	0.37	17.18
March 2015	0.14	4.98	743	743	0.37	13.37
April 2015	1.13	4.44	720	719	3.14	12.32
May 2015	0.14	4.88	744	744	0.37	13.11
June 2015	0.13	5.88	720	712	0.37	16.33
July 2015	1.58	4.46	744	744	4.26	11.98
August 2015	1.50	4.56	731	744	4.03	12.27
September 2015	0.13	4.59	720	720	0.36	12.74
October 2015	1.49	7.35	744	603	4.00	19.76
November 2015	0.13	5.93	720	720	0.37	16.47
December 2015	1.09	5.05	744	744	2.92	13.57
January 2016	0.85	5.96	743	744	2.28	16.03
February 2016	0.13	7.00	696	696	0.37	20.11
March 2016	0.14	4.93	743	743	0.37	13.26
April 2016	1.36	4.28	715	720	3.77	11.90
May 2016	0.13	4.82	744	744	0.36	12.95
June 2016	0.70	5.76	720	713	1.93	16.01
July 2016	0.13	4.83	744	744	0.36	12.98
August 2016	1.88	4.81	744	744	5.06	12.92
September 2016	0.57	4.57	720	720	1.60	12.71
October 2016	0.28	7.34	742	711	0.76	19.72
November 2016	3.30	7.52	720	720	9.15	20.88
December 2016	8.14	7.99	744	744	21.89	21.47

4.3 Urban vs. Rural Determination

The DHEC BAQ land use GIS tool was utilized to determine if a 3 km area surrounding each facility should be classified as rural or urban for the purposes of this modeling analysis. The DHEC BAQ land use GIS tool makes use of 2001 National Land Cover Database (NLCD) data and was applied separately for IP Eastover Mill and SCE&G Wateree Station.

Table 9 shows the percent land use for different land use categories within 3 km of each facility. The area surrounding both facilities is predominately rural and the non-developed land use classes total about 71% for both IP Eastover Mill and SCE&G Wateree Station. Therefore, the rural option was selected in AERMOD.

Table 9 Land use percentage within 3 km of IP Eastover Mill and SCE&G Wateree Station

Land use Class	IP Eastover Mill	SCE&G Wateree Station
Open water	17.55%	17.36%
Developed, Open Space	4.80%	4.50%
Developed, Low Intensity	8.88%	9.17%
Developed, Medium Intensity	10.38%	10.25%
Developed, High Intensity	4.99%	4.94%
Barren Land	1.93%	0.02%
Deciduous Forest	5.60%	1.07%
Evergreen Forest	5.85%	10.40%
Mixed Forest	0.07%	0.08%
Scrub/Shrub	0.16%	0.13%
Grassland/Herbaceous	11.86%	6.18%
Pasture/Hay	1.90%	1.79%
Cultivated Crops	4.12%	3.08%
Woody Wetlands	16.15%	24.74%
Emergent Herbaceous	5.76%	6.30%

5 Meteorological Data

5.1 Overview

The modeling was performed utilizing the three most recent years of meteorological data, 2014 through 2016. DHEC BAQ provided the AERMOD-ready meteorological input files for this analysis based on the most representative station. AERMOD was run using the AERMET dataset run with current default options.

IP Eastover Mill and SCE&G Wateree Station are both located approximately 40 km east-southeast of Columbia, South Carolina in Richland County, right on the Richland and Sumter County line. DHEC BAQ guidance recommends the following meteorological data sets for sources in these counties:

- Richland County – surface meteorological data from Columbia Metropolitan Airport along with concurrent upper air observations from Greensboro, North Carolina's Piedmont Triad International Airport.
- Sumter County – surface meteorological data from Florence Regional Airport along with concurrent upper air observations from Greensboro, North Carolina's Piedmont Triad International Airport.

In order to determine which meteorological data set is most suitable for modeling, the following factors relative to IP Eastover Mill and SCE&G Wateree Station were examined:

- proximity,
- representativeness of winds,
- representativeness of terrain, and
- representativeness of land use.

5.2 Proximity

Figure 15 shows the location of IP Eastover Mill and SCE&G Wateree Station relative to the Columbia Metropolitan Airport and the Florence Regional Airport. Circles of radius 20km and 50km are included to help establish scale. The Columbia Metropolitan Airport is located approximately 45 km to the west-northwest of the facilities. The Florence Regional Airport is located approximately 90 km to the east-northeast of the facilities. Columbia Metropolitan Airport is clearly much closer to the facilities and is preferred on that basis.

Figure 15 Location of IP Eastover Mill and SCE&G Wateree Station relative to nearby airports

5.3 Representativeness of Winds

While the analysis of the representativeness of winds presented here was performed for 2012-2014, it is assumed that the same general conclusions from 2012-2014 also apply to the modeled period 2014-2016.

Figure 16 shows 3-year (2012-2014) wind roses for the Columbia Metropolitan and Florence Regional Airports. These wind roses incorporate use of the available 1-minute Automated Surface Observing System (ASOS) data for each airport. The wind rose patterns at these two sites are somewhat similar. Columbia Metropolitan has more of a westerly component to the southerly winds, whereas Florence Regional's southerly winds are more aligned with southwesterly winds. The wind speeds are also similar, with Columbia Metropolitan registering a 2.83 m/s annual average wind speed over the three years (2012-2014), and Florence Regional averaging 3.16 m/s over the same time period. Since the facilities are much closer to the Columbia Metropolitan Airport, and there are no significant terrain features nearby, the winds at Columbia Metropolitan Airport are more representative for the two facilities.

During the three year period of 2012-2014 proposed for modeling, both airports have data capture percentages of about 96% on an annual basis. Both airports also report a very low frequency of calm winds with Columbia Metropolitan at 1.39% and Florence Regional at 1.59% over the three year period. The low frequency of calm winds is largely attributable to the use of the 1-minute ASOS data.

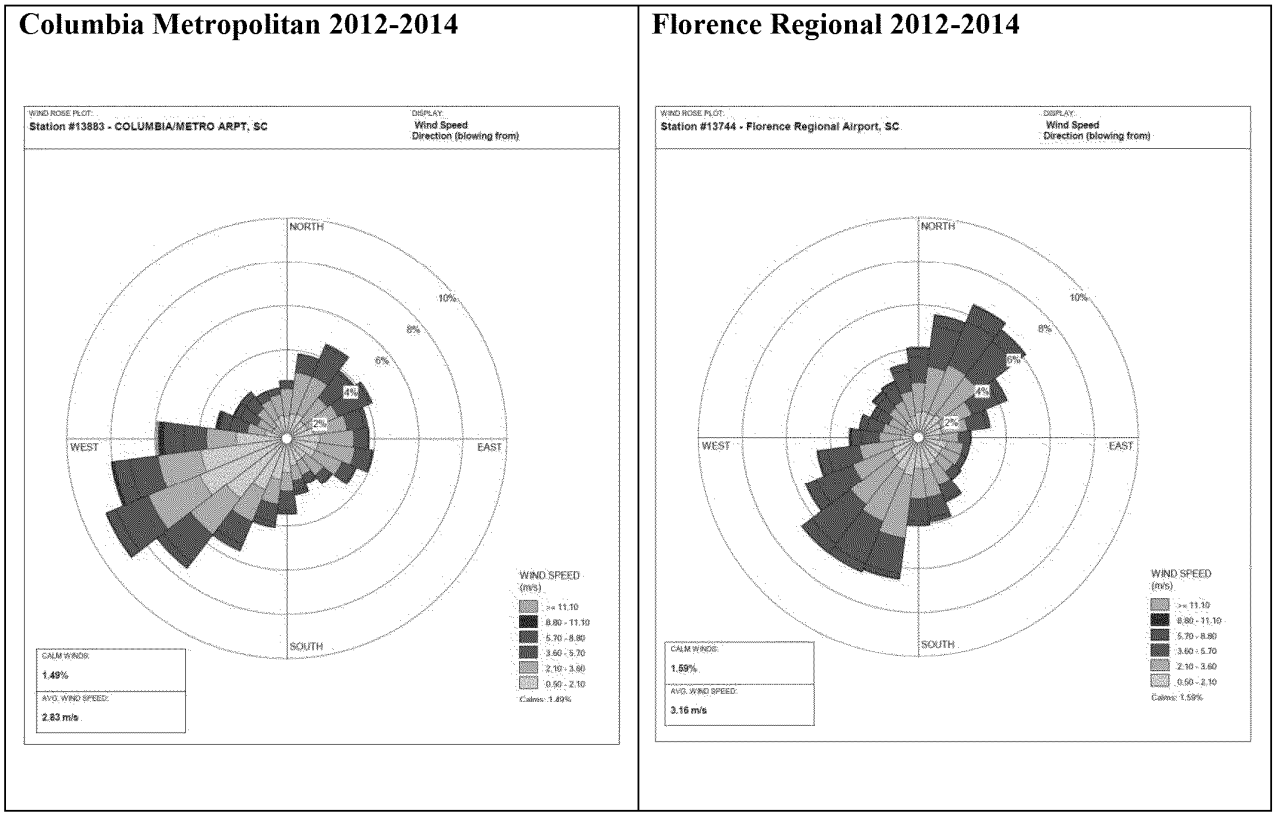

Figure 16 Wind roses for nearby airports

5.4 Representativeness of Terrain

IP Eastover Mill and SCE&G Wateree Station are both located in a broad river valley with largely flat terrain between and surrounding the two facilities. The terrain in the area surrounding Columbia Metropolitan Airport is similarly flat. The elevations at Columbia Metropolitan Airport, IP Eastover Mill, and SCE&G Wateree Station are comparable, and there are no significant elevation changes in the terrain between them. Therefore, Columbia Metropolitan Airport is representative of the terrain surrounding IP Eastover Mill and SCE&G Wateree Station.

5.5 Representativeness of Land Use

AERMET requires specification of site characteristics including surface roughness, albedo, and Bowen ratio. These parameters and their representativeness between the application site and measurement site are an important consideration when selecting a meteorological data set to use for modeling as these parameters are used as inputs to AERMET, and eventually AERMOD, to help characterize the dispersion in the atmospheric boundary layer.

AERSUFACE was used to help compare these land use parameters for the areas surrounding IP Eastover Mill, SCE&G Wateree Station, Columbia Metropolitan, and Florence Regional Airports. AERSURFACE is a tool developed by EPA (EPA, 2008) that can be used to determine the site land use characteristics based on digitized land cover data in accordance with the recommendations in the AERMOD Implementation Guide (AIG) (EPA, 2009). AERSURFACE incorporates look-up tables of representative surface characteristic values by land cover category and seasonal category.

The revised AIG provides the following recommendations for determining the site characteristics:

1. The determination of the surface roughness length should be based on an inverse distance weighted geometric mean for a default upwind distance of 1 km relative to the measurement site. Surface roughness length may be varied by sector to account for

variations in land cover near the measurement site; however, the sector widths should be no smaller than 30 degrees.

2. The determination of the Bowen ratio should be based on a simple unweighted geometric mean (i.e., no direction or distance dependency) for a representative domain, with a default domain defined by a 10 km by 10 km region centered on the measurement site.

3. The determination of the albedo should be based on a simple unweighted arithmetic mean (i.e., no direction or distance dependency) for the same representative domain as defined for Bowen ratio, with a default domain defined by a 10 km by 10 km region centered on the measurement site.

The current version of AERSURFACE (Version 13016) supports the use of land cover data from the USGS National Land Cover Data 1992 archives (NLCD92). The NLCD92 archive provides data at a spatial resolution of 30m based upon a 21-category classification scheme applied over the continental U.S. Figure 17 depicts the NLCD92 data within 1 km of: Columbia Metropolitan Airport, Florence Regional Airport, IP Eastover Mill, and SCE&G Wateree Station. Figure 17 shows that there are some differences in the land use at the four sites. As such, AERSURFACE was run to quantify what these differences mean in terms of actual inputs to AERMET and AERMOD.

AERSURFACE was applied for a single 1 km sector around each site as depicted in Figure 17 using average moisture conditions and default seasonal classifications. The results of the three AERSURFACE runs are presented in Table 10. Table 10 shows the annual average albedo and Bowen ratio values are generally similar except that the Bowen ratio is a bit lower for IP Eastover Mill and SCE&G Wateree Station in comparison to the two airports. The surface roughness, however, is different. This is a common result because there are typically fewer roughness elements surrounding the anemometer at an airport than at an industrial site. In addition, the surface roughness may be a bit underestimated for the two industrial sites as the 1992 NLCD data does not accurately portray the land use around the facilities themselves. We believe that the surface roughness around the airports may also be understated because the

grassy areas surrounding each airport (within 1 km) are characterized as "Urban/Recreational Grasses" consistent with mowed and manicured lawns. It is more likely that the grassy areas surrounding the airport are closer to natural grasslands such as those used for grazing. This would support a higher surface roughness of 0.01 to 0.1 meters consistent with the AERSURFACE category for "Grasslands/Herbaceous" as opposed to 0.01 to 0.02 meters for "Urban/Recreational Grasses".

Based on the factors discussed above, notably the much closer proximity and slightly higher surface roughness, the modeling utilized data from Columbia Metropolitan Airport along with concurrent upper air observations from Greensboro, NC for the three year period, 2012-2014.

Table 10 Land use comparison for IP Eastover Mill, SCE&G Wateree Station, and two nearby airports

	Annual Average Land Use		
Site	Albedo	Bowen	z_o
Columbia Metropolitan	0.16	0.69	0.049
Florence Regional	0.16	0.58	0.042
Eastover	0.15	0.36	0.308
Wateree	0.15	0.31	0.148

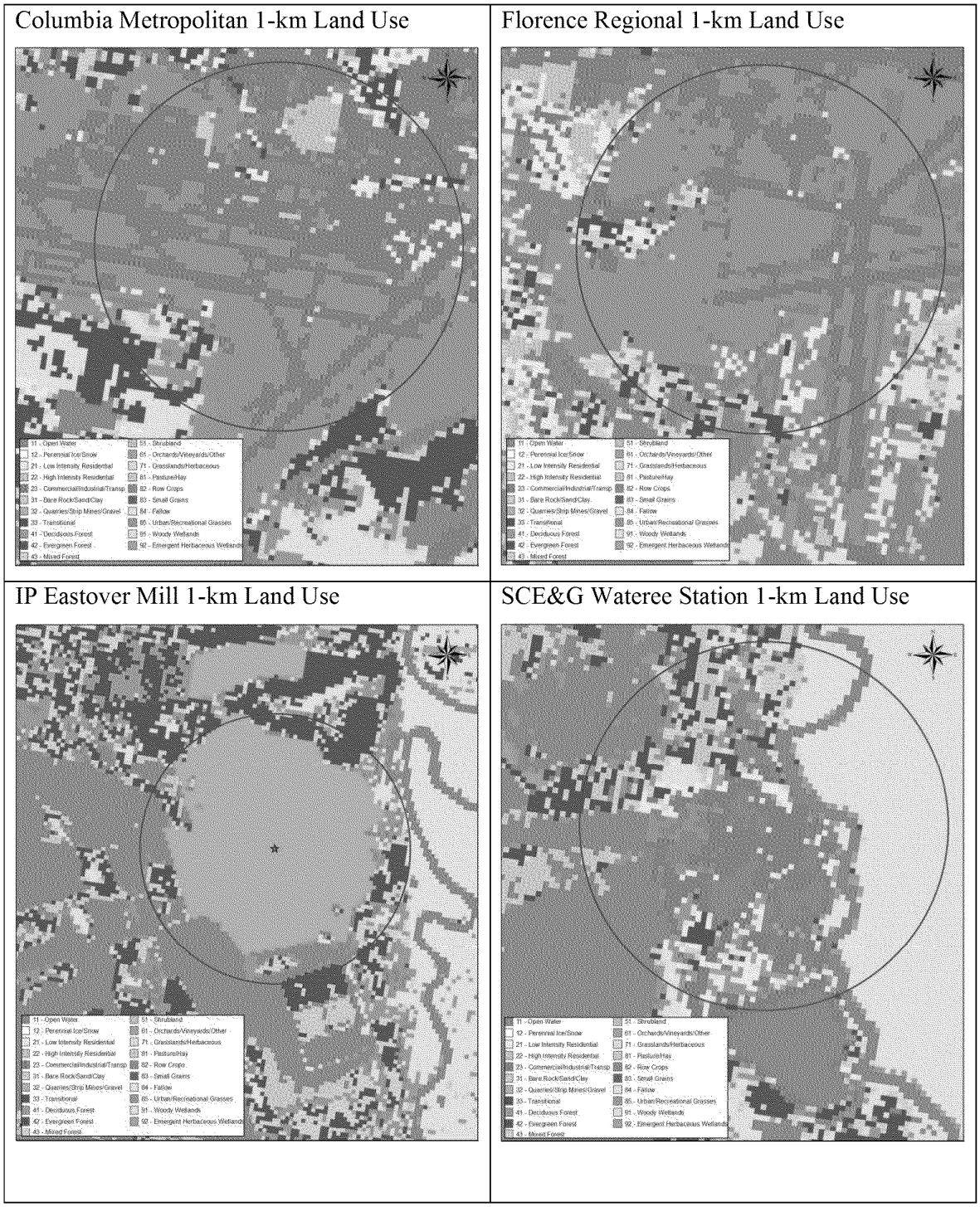

Figure 17 Land use surrounding IP Eastover Mill, SCE&G Wateree Station, and the two nearby airports

6 Background Monitoring Data

6.1 Overview

Ambient air quality data are used to represent the contribution of non-modeled sources to the total ambient air pollutant concentrations. In order to determine compliance with the 1-hour SO_2 NAAQS, the modeled design concentration must be added to a measured ambient background concentration to estimate the total design concentration. This total design concentration is then compared to the NAAQS to determine compliance.

While the ambient air quality data analysis presented here was performed for 2012-2014, it is assumed that the same general conclusions also apply to the modeled period 2014-2016.

For this analysis, we considered data from two nearby monitors: Congaree Bluff (Site ID: 450790021; Address: 1850 South Cedar Creek Road) and Parklane (Site ID: 450790007; Address: 8311 Parklane Road). Figure 18 shows the location of IP Eastover Mill, SCE&G Wateree Station, and the Congaree Bluff and Parklane monitors.

Design concentrations for the period of 2012 through 2014 are provided for each of the monitors in Table 11. The design concentrations are based on the 99th percentile of the peak daily 1-hour SO_2 concentrations averaged over three years.

In order to determine which monitor is most appropriate to use for the ambient background concentration in this analysis, we considered several factors including proximity, data quality, and influence from nearby sources.

Table 11 1-hour SO_2 Design Concentrations for the Congaree Bluff and Parklane Monitors

Monitor	Year	Annual Data Capture		99th Percentile Concentration	Design Concentration (3-year average)	
		hours	%		ppb	µg/m³
Congaree Bluff	2012	8548	98%	11 ppb	19	51
	2013	8650	99%	22 ppb		
	2014	1280	15%	25 ppb		
Parklane	2012	8315	95%	10 ppb	12	31
	2013	8667	99%	10 ppb		
	2014	8676	99%	15 ppb		

6.2 Proximity

As shown in Figure 18, the Congaree Bluff monitor is located approximately 15 km west-southwest of IP Eastover Mill and SCE&G Wateree Station. The Parklane monitor is located approximately 40 km west-northwest of these two facilities. The Congaree Bluff monitor is clearly affected by emissions from IP Eastover Mill and SCE&G Wateree Station when prevailing winds are in the direction from these facilities towards the monitor due to its close proximity to these two facilities. Additional discussion of nearby source influence on the Congaree Bluff monitor is provided below.

6.3 Data Quality

In addition to the design value concentrations, Table 11 summarizes the number of annual 1-hour observations for each of the three years. All three years for the period 2012-2014 for the Parklane monitor show excellent data capture exceeding 95%. The Congaree Bluff monitor shows excellent data capture for 2012 and 2013, exceeding 98%, but data capture for 2014 is poor at about 15%. The Congaree Bluff monitor is missing data from around March 2014 through early December 2014.

Figure 18 Location of nearby monitors in relation to IP Eastover Mill and SCE&G Wateree Station

6.4 Nearby Source Influence

As stated, the Congaree Bluff monitor is strongly influenced by SO_2 emissions from both IP Eastover Mill and SCE&G Wateree Station. The two facilities are very close to the Congaree Bluff monitor and the observations clearly show higher concentrations when the winds blow from a direction (from the east-northeast) that would have favorable transport from IP Eastover Mill and SCE&G Wateree Station to the Congaree Bluff monitor. This is clearly evident in Figure 19, which shows a pollution rose of the Congaree Bluff monitor for the 2012-2014 period of time. The pollution wind rose incorporated wind data from Columbia Metropolitan Airport.

A pollution rose for the Parklane monitor (also shown in Figure 19) was produced for the 2012-2014 period using wind data from Columbia Metropolitan Airport. The observed concentrations

at the Parklane monitor show very little influence from IP Eastover Mill and SCE&G Wateree Station under favorable transport winds (from the southeast). The Parklane monitor does show a spike in monitored concentrations when winds are blowing from the southwest, likely due to influence from SCE&G McMeekin Station, which is located about 24 km to the west-southwest of the monitor and is currently coal-fired.

Overall, we believe the Parklane monitor is the best choice to use for the ambient background concentrations for the 1-hour SO_2 NAAQS analysis. Use of the Congaree Bluff monitor would result in double-counting impacts from IP Eastover Mill and SCE&G Wateree Station, since both sources are included in the modeled component of the total estimated design concentration (modeled + monitored background). In addition, data capture from the Congaree Bluff monitor is inadequate for 2014, while the Parklane monitor has strong data capture for all three years. Use of the Parklane monitor for 2012-2014 provides a conservative measure of ambient background SO_2 for this model application as these data are still influenced by SO_2 emissions from the SCE&G McMeekin Station. These emissions were reduced dramatically in March 2016 when the SCE&G McMeekin Station ceased to operate on coal and fully converted to natural gas.

Consistent with EPA guidance in their March 1, 2011 clarification memo, seasonal and hour-of-day varying background concentrations for 2014-2016 from the Parklane monitor were used in the modeling. These data were provided by DHEC BAQ and are listed in Table 12.

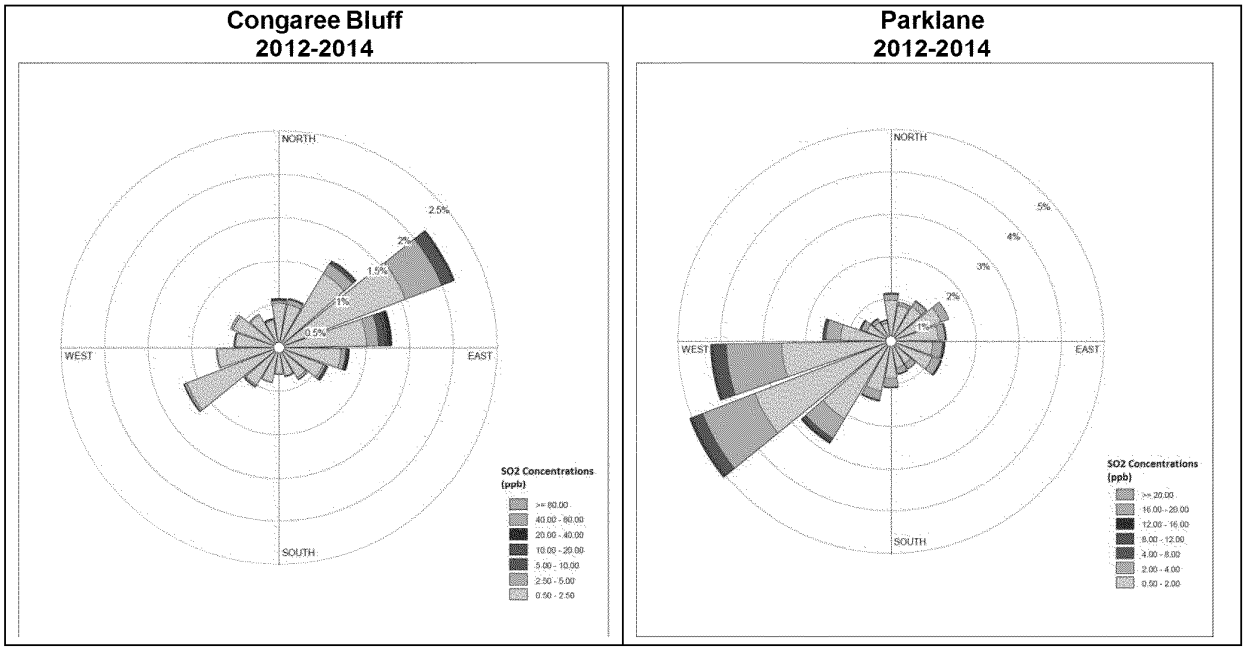

Figure 19 Pollution roses for the Congaree Bluff and Parklane monitors (2012-2014)

Table 12 Time-varying 1-hour SO_2 Concentrations by Season and Hour-of-day for the Parklane Monitor for 2014-2016

Hour of Day	Season 1	Season 2	Season 3	Season 4
Start Time	Dec-Jan-Feb (µg/m^3)	Mar-Apr-May (µg/m^3)	Jun-Jul-Aug (µg/m^3)	Sep-Oct-Nov (µg/m^3)
1	12.4	6.9	2.7	2.1
2	6.2	5.0	4.0	2.4
3	6.0	3.6	3.9	2.4
4	7.9	3.3	2.9	2.4
5	7.7	3.2	3.7	2.1
6	5.1	3.1	2.2	2.4
7	5.5	4.2	2.4	2.7
8	7.5	5.7	5.9	4.0
9	8.2	5.9	10.4	5.1
10	13.3	4.4	8.6	4.5
11	14.4	7.0	6.8	4.6
12	9.6	4.3	5.8	5.1
13	8.6	3.3	4.4	3.2
14	7.4	3.0	4.3	2.4
15	8.7	4.1	3.7	2.1
16	11.2	5.8	4.8	3.0
17	10.4	6.5	5.4	3.0
18	8.6	8.4	8.6	3.2
19	9.0	8.4	6.2	3.5
20	9.9	9.8	8.1	2.4
21	9.3	7.1	2.3	2.4
22	8.0	5.1	3.1	2.3
23	13.4	3.1	3.0	2.4
24	15.9	5.0	2.2	2.2

7 Modeling Results with Actual Emissions for SCE&G Wateree Station and Constant Emissions for IP Eastover Mill

For the modeling scenario with 2014-2016 actual hourly emissions for SCE&G Wateree Station and constant emissions for IP Eastover Mill, the 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations are in compliance at all modeled receptors with the NAAQS value of 75 parts per billion (ppb) (approximately 196.0 µg/m^3).

The controlling predicted 3-year averaged, 4th high, maximum daily, 1-hour SO_2 impact is shown below in Table 13. The maximum total design concentration value of 170.3 µg/m^3 occurs just south of the IP Eastover Mill plant boundary in an area with 100-meter spaced receptors. Figure 20 shows the overall pattern and locations of the design concentrations (modeled plus ambient background).

Table 13 Controlling 3-year Averaged 4th-High Maximum Daily 1-hour SO_2 Predicted Concentration for SCE&G Actual Hourly and IP Constant Emissions

Pollutant and Averaging Period	IP Eastover Mill Contribution (µg/m^3)	SCE&G Wateree Station Contribution (µg/m^3)	Modeled Background Contribution (µg/m^3)	Monitored Background Contribution (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)
SO_2 1-hour	67.68	97.47	0.27	4.88	170.30	196.0

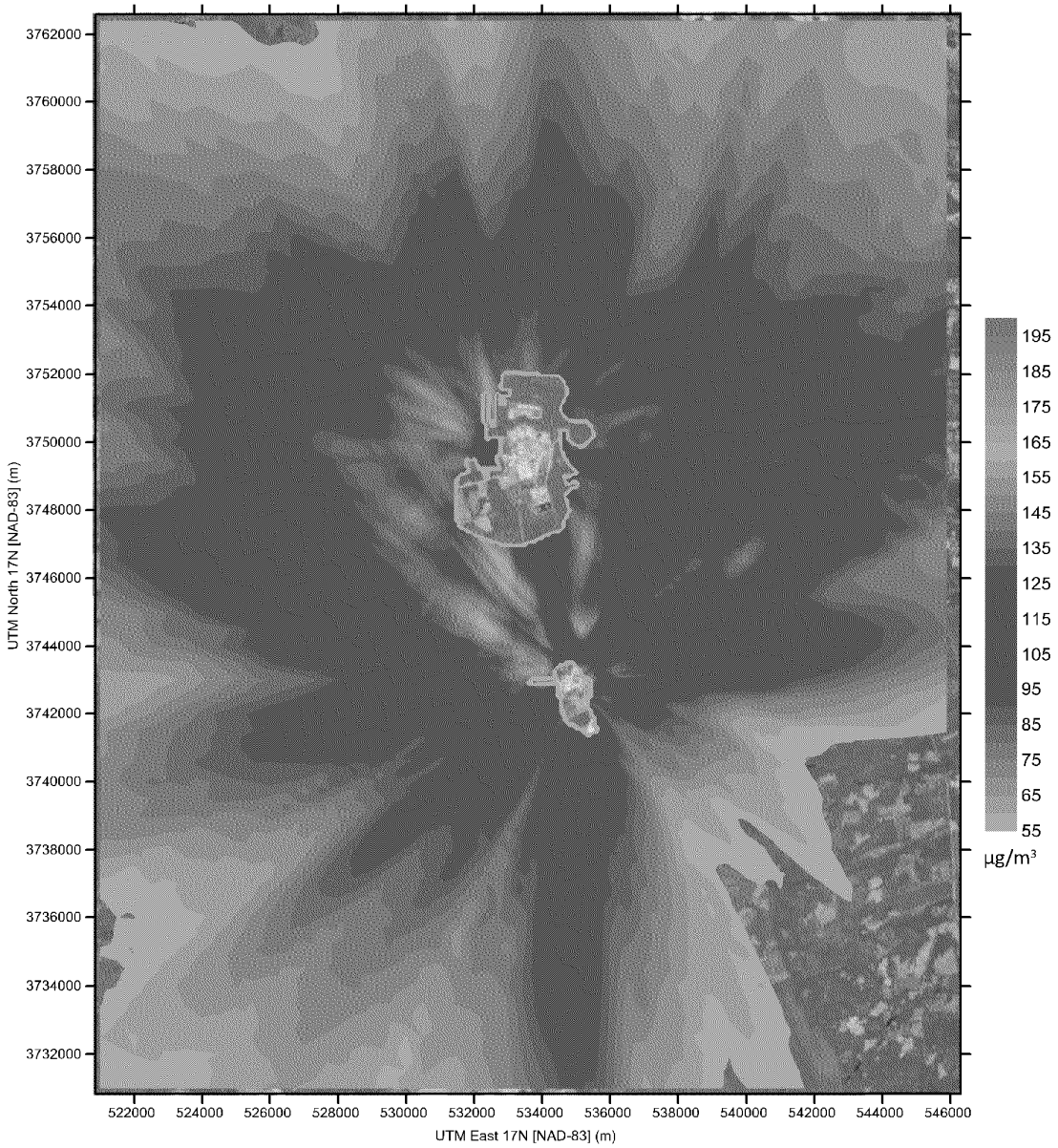

Figure 20 Isopleth map of 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations with actual hourly SCE&G Wateree Station and constant IP Eastover Mill emission rates

8 Modeling Results with Constant Emissions for Both SCE&G Wateree Station and IP Eastover Mill

For the modeling scenario with constant emissions for both SCE&G Wateree Station and IP Eastover Mill, the 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations are in compliance at all modeled receptors with the NAAQS value of 75 parts per billion (ppb) (approximately 196.0 μg/m^3). Future actual emissions are not expected to exceed the modeled emission rates in this scenario for either facility.

The controlling predicted 3-year averaged, 4th high, maximum daily, 1-hour SO_2 impact is shown below in Table 14. The maximum total design concentration value of 194.86 μg/m^3 occurs along the northwestern boundary of the IP Eastover Mill plant boundary in an area with 100-meter spaced receptors. Figure 21 shows the overall pattern and locations of the design concentrations (modeled plus ambient background).

Table 14 Controlling 3-year Averaged 4th-High Maximum Daily 1-hour SO_2 Predicted Concentration for SCE&G Actual Hourly and IP Constant Emissions

Pollutant and Averaging Period	IP Eastover Mill Contribution (μg/m^3)	SCE&G Wateree Station Contribution (μg/m^3)	Modeled Background Contribution (μg/m^3)	Monitored Background Contribution (μg/m^3)	Total Concentration (μg/m^3)	NAAQS (μg/m^3)
SO_2 1-hour	140.03	48.39	0.51	5.93	194.86	196.0

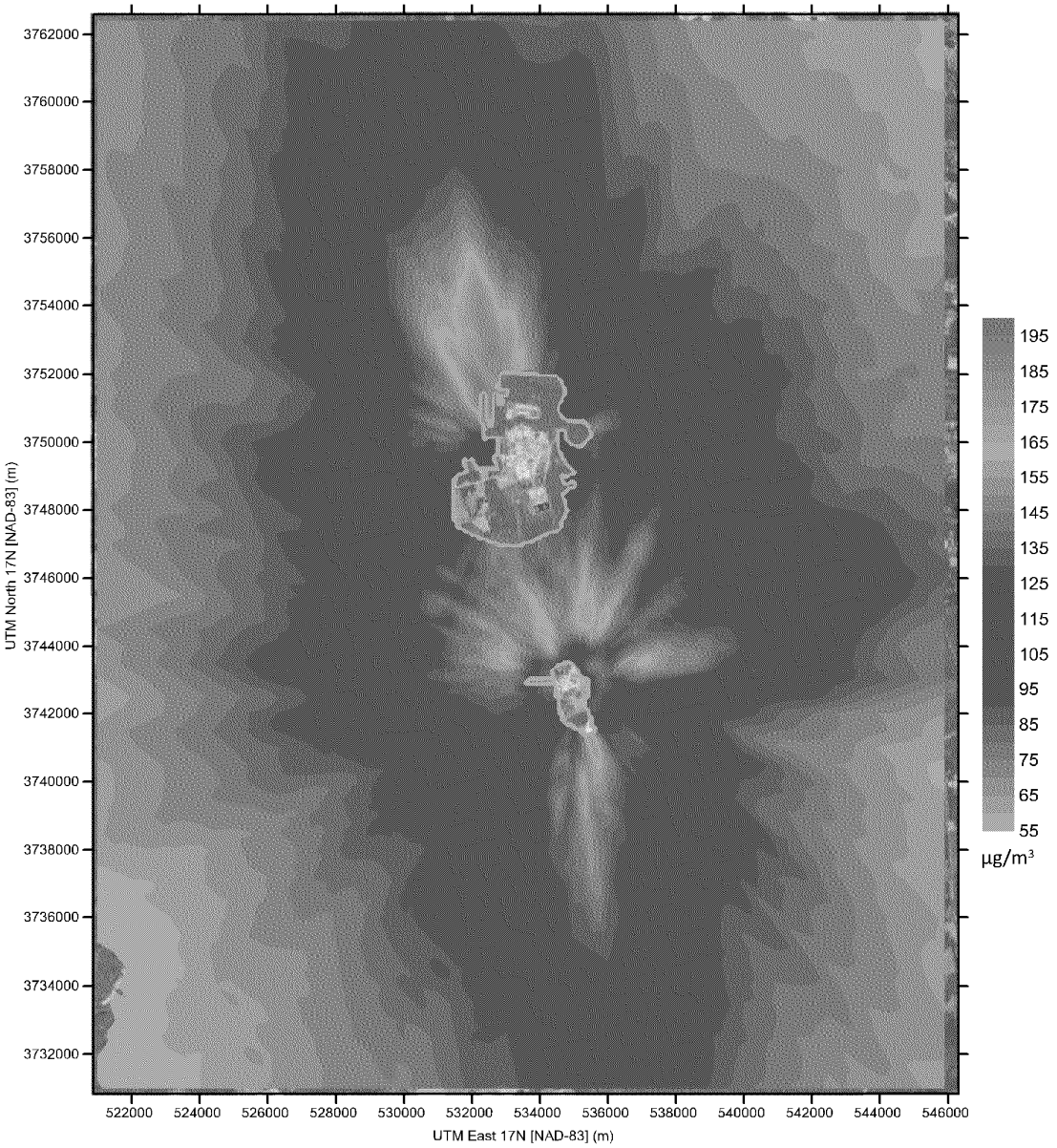

Figure 21 Isopleth map of 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations with constant emissions for both SCE&G Wateree Station and IP Eastover Mill

9 Conclusion

The air quality modeling analysis presented in this report demonstrates that the region surrounding SCE&G Wateree Station and IP Eastover Mill in Eastover, South Carolina is in attainment with respect to the 1-hour NAAQS for SO_2. This analysis was additionally performed using modeled emissions that are expected to be higher than any future actual emissions. Therefore, the area should be classified as "attainment" with respect to the 1-hour NAAQS for SO_2.

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To: Krivo.stanley@epa.gov[Krivo.stanley@epa.gov]
From: Gillam, Rick
Sent: Mon 6/5/2017 8:00:23 PM
Subject: FW: Responses to Comments - SO2 Data Requirement Rule Modeling
SO2 DRR response to comments support files.piz

FYI – here is the additional information from NCDAQ.

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Thursday, June 1, 2017 7:14 AM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

10-4. See if this one goes through. If it doesn't I can load it to our ftp server.

TA

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Wednesday, May 31, 2017 3:25 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

Hi Tom,

Thanks for the responses. Unfortunately, for security reasons our email system stripped your .zip file and it was not delivered. Please rename to an extension other than .zip or .exe and it should come through fine.

Thanks,

-Rick

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Wednesday, May 31, 2017 3:15 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Michael Pjetraj <michael.pjetraj@ncdenr.gov>; Coughlin, Patrick W <Patrick.Coughlin@duke-energy.com>; Knudsen, Kris W <Kris.Knudsen@duke-energy.com>; Nancy Jones <nancy.jones@ncdenr.gov>; Porter, Matthew k <Matthew.Porter@ncdenr.gov>; Zarnowski, Alexander R <alexander.zarnowski@ncdenr.gov>
Subject: Responses to Comments - SO2 Data Requirement Rule Modeling

Rick,

I have provided responses to your comments, in red text below each of your comments, regarding the SO2 DRR modeling for the Duke Energy facilities. Additionally, I have attached a .zip file that contains several files referenced in my comments.

Please let me know if you have any further questions or require additional information.

Thanks,

Tom A.

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Thursday, May 25, 2017 3:10 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Cc: Rinck, Todd <Rinck.Todd@epa.gov>; Worley, Gregg <Worley.Gregg@epa.gov>; Kemker, Carol <Kemker.Carol@epa.gov>
Subject: RE: Review Comments - SO2 Data Requirement Rule Modeling Comments

Hi Tom,

Pursuant to a phone conversation between Mike Abraczinskas and Carol Kemker, I have gone through the comments Stan sent you previously and pared them down to the most significant issues where we need further information to complete our analysis. The revised list is provided below. Please give me a call to discuss when you have a chance.

Thanks,

Rick

Duke Energy Marshall Steam Station

1) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

SO2 emissions were obtained from Duke Energy staff.

Duke Response: The SO2 emissions data were obtained from the data reported by our CEMS, using the same data base that is reported to the EPA Clean Air Markets Division (CAMD). All substituted values are as reported to CAMD in accordance with Part 75 requirements. SO2 data availability was 98.9% or greater for all stacks during this period.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

Hourly varying stack parameters were obtained from Duke Energy staff.

Duke Response: The hourly stack exit velocity was calculated using Part 75 CEMS data. CEMS monitor data availability for flow measurement was 99.5% or greater for all stacks during this period. The hourly exit velocity was calculated from the hourly flow and stack temperature data using the following equation.

V msec=A STD ft3hr x hr60 min x min60 sec x B+480528 x π x D22x 0.3048 m3ft3

Where:

V is the stack exist velocity in meter/sec

A is the Part 75 stack flow rate in standard cubic feet per hour

B is the stack gas temperature in degree F

D is the stack diameter in feet

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 8, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

<u>Duke Energy Allen Steam Station</u>

1) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 9, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Mayo Electric Generating Plant

1) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

The text in Section 7, page 4, of the modeling report that indicates that the two boilers vent to individual stacks is an error. The statement was simply an inadvertent carryover from another report that was used as a template and the two boilers do indeed vent from only a single stack.

2) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.). Additionally, the hourly emissions files used in the modeling should be provided for review.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 6, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

The hourly emission rates for both the Duke – Roxboro units and the CPI units were obtained from actual CEM data for the period 2013-2015 and were obtained from EPA's Clean Air Markets Database (https://ampd.epa.gov/ampd/).

The hourly emissions file used in the modeling is attached to this message (filename:

mayo_hourly emissions SO2.txt)

Duke Energy Belew Creek Generating Station

1) Modeled Emissions

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

Duke Response: Use of "before and after" temperatures might be appropriate for short periods of missing data where the operating conditions are similar during the missing period, but for longer periods of missing data, an average temperature is a more appropriate representation since the operating conditions (minimum to maximum generating load and heat input) may vary significantly over time . Also, due to the continuous operation of the wet scrubbers, there is a relatively small range of temperature variation (average 121 °F with standard deviation of 3.5 °F) and there should be little impact on the modeling whether using the average temperature or a temperature based on the period before and after.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

Duke Response: The two auxiliary boilers combust fuel oil that is exclusively the ULSD fuel oil supply that is commercially available in the region. The maximum emissions rate for these boilers is 0.27 lb/hr each. The emissions rate for the Belews Creek Units 1 and 2 EGU boilers operating at maximum averages approximately 1,200 lb/hr, with a typical range (95% of data) between 600 to 2000 lb/hr.

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

Duke Response: A file including all SO2 sources within 50 km is attached to this message (filename: BCInventory010517.xlsx). Section 13, pages 22-25, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

Attached are two files to support the exclusion of the boilers from the modeling – 1) a 2015 Permit Review in which removal of the boilers is discussed and, 2) the latest 2017 Compliance Inspection Report that shows all permitted sources at the facility.

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

•□□□□□□□□ The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

Duke Response: The modeled emissions rate was estimated by dividing the reported annual emissions over the period from 2013 to 2015 by 8760 hour/year. The inventory did not provide information on the hours of operation, therefore 8,760 hours of operation was used to estimate the lbs/hr emissions rate used in the modeling .

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Friday, May 12, 2017 1:44 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

FYI.

From: Anderson, Tom
Sent: Thursday, April 27, 2017 11:53 AM
To: Abraczinskas, Michael <michael.abraczinskas@ncdenr.gov>; Pjetraj, Michael <michael.pjetraj@ncdenr.gov>; Strait, Randy P <randy.strait@ncdenr.gov>; Masemore, Sushma <sushma.masemore@ncdenr.gov>
Cc: Willets, William <william.willets@ncdenr.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

Shall we convene to discuss how we should respond to Stan's comments? None of his comments are likely to require any re-modeling nor make any difference at all in any modeled impacts if we do.

TA

From: Krivo, Stan [mailto:Krivo.Stanley@epa.gov]
Sent: Thursday, April 27, 2017 11:34 AM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: Review Comments - SO2 Data Requirement Rule Modeling Comments

Tom,

As I indicated in our telephone call today, the follow are my observations and review comments on the air quality modeling provided four SO_2 Data Requirement Rule (DRR) sources (i.e., area

modeling assessments) for the North Carolina 3rd round of SO_2 attainment designations. Only the comments preceded by an asterisk request additional information, clarification, and/or analyses.

Duke Energy Marshall Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Marshall Steam Station appear not to have been performed. The determination was apparently made based on the qualitative review of the satellite imagery of land use types provided Figure 3.

- *Although the determination of rural mode for the Marshall facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

3) Intermittent Emission Sources

- Duke-Marshall's two emergency generators, emergency water pump, and emergency air compressor were considered as intermittent emission sources based on their frequency of operation and magnitude of SO_2 emissions. The magnitude of their operation during the years 2013-2015 were provided in Table 2.

- *The basis for the reported emissions in Table 2 should be provided (e.g., routine maintenance/testing operations). The frequency and duration of routine operational testing of each unit should be provided to support their classification as intermittent emission units.

4) Receptor Grids

- *To ensure identification of the controlling concentration, the maximum concentration and all concentrations challenging the maximum concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *The reason the 2013-2015 NCDAQ emission inventory was used in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

6) Model Results

- *The location of the modeled design value concentration should be provided to ensure it was in a grid of 100-m resolution.

Duke Energy Allen Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Allen Steam Station was not performed. The determination was made based on the qualitative review of the aerial satellite image provided in Figure 3.

- *Although the determination of rural mode for the Allen facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Receptor Grids

- *The controlling concentration and all concentrations challenging the controlling

concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

3) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *Although the provided qualitative assessment results confirmed the assumption that Resolute Paper's impacts would be less than those from Duke Marshall, Resolute Paper has SO_2 emissions of over 2,000 TPY resulting in a Q/D of 66. Based on this information, Resolute Paper should have been included in the cumulative assessment to characterize the background SO_2 conditions about Duke Allen Steam Station.

- *Use of the 20D procedure, as indicated in Table 3, identifies the inclusion of the Resolute Paper facility in the cumulative impact modeling. Note that the emissions from sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The reason and appropriateness of the 2013-2015 NCDAQ's emission inventory use in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

- *Although actual hourly emissions from CEMS on the Duke Marshall facility were used in the cumulative modeling, the emission rates for other nearby sources (e.g., Resolute Paper) included in the modeling would be based only on the maximum annual emissions for the 2013-2015 period. Because state/county emission inventories generally only contain annual allowable emission rates, the basis and appropriateness for the modeled hourly emission rates and stack parameters for these emission sources should be provided and discussed.

<u>Duke Energy Mayo Electric Generating Plant</u>

1) Model Selection

- *The AERMAP version number was indicated to be 11130. Because the correct number is 11103, confirmation is needed that the correct model version was used.

2) Meteorological Data

- *The surface and upper air NWS stations that were considered for the Duke-Mayo impact assessment should be provided along with the specific reason(s) the Danville Regional Airport

and Greensboro upper air station were selected.

- *The surface moisture was characterized as average based the comparison of monthly precipitation totals for the 2013-2015 data period to the 30-year data record. The specific precipitation information should be provided (e.g., table containing these values for comparison) to support/document this determination.

3) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Mayo Electric Generating Plant was not performed. The determination was made based on the qualitative review of the available satellite imagery provided Figure 2.

- *Although the determination of rural mode for the Mayo facility may be appropriate, a quantitative land use characterization should be provided for documentation.

4) Receptor Grids

- *The controlling concentration was indicated to have been located within 100-meter spacing (i.e., within 3 km). To ensure this value is the controlling concentration, confirmation is needed that all concentrations challenging the controlling concentration (e.g., within 10%) were also modeled in grids of 100-m resolution.

5) Facility Layout.

- *Confirmation is needed that the identified boundary in Figure 3 is actually a fence line, or property line with barriers to public access so it can be considered non-ambient air (i.e., area not included in the impact assessment). Non-ambient air must be separated from public access by some form of barrier.

6) Intermittent Emission Sources

- The exclusion of the emergency generator and Quench pump for the impact assessment was based on the Table 2 estimated/calculated maximum emission rates. The bases for these calculations was indicated to be NC DAQ IC Spreadsheets using 0.0015% ULSD.

- Table 2 maximum SO_2 hourly emission rate and maximum annual emissions would indicate annual operations of 7.5 hours for the emergency generator and 40 hours for the emergency

quench pump.

- *Exclusion of these sources should be based on their past operation and emissions/fuel used during the 2013-2015 modeled period. The actual hours of operation and emission rates during this period should be provided to document and support their exclusion as intermittent sources.

7) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

8) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.).

Duke Energy Belew Creek Generating Station

1) Rural/Urban Project Area Determination

- *The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. The determination was indicated to be bases on this type of assessment. Documentation of this quantitative assessment is needed to support the rural determination (e.g., figure(s) providing the land use characterizations).

2) Bowen Ratio Moisture Determination

- *The percentile labels in Table 4 (Greensboro 70th and 30th Percentile of Precipitation) appear to have been reversed (i.e., 70th percentile should have 70 percent of the observations less than or equal to the value while the 30 percentile value should have 30 percent of the observations equal to or less than the value).

- *Table 5 appears to have an incorrect moisture determined for March 2014. It appears that this year/period was "WET".

- *The effect of the above apparent discrepancies on the provided impact assessments should be addressed.

3) Receptor Grids

- *Confirmation is needed that controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) were modeled in grids of 100-m resolution.

4) Modeled Emissions

- *Table 6 provides the Belews Creek boiler emissions. These emissions are only provided in TPY for the years 2013-2015. Section 11.3 indicated prior to 2015 the sulfur content for the Auxiliary Boilers (ES-3 and ES-4) was 0.05% sulfur. The reason 0.5% sulfur (table footnote) was used for the annual TPY provided in Table 6 should be provided.

- *Although the maximum hourly SO_2 emissions for the six emergency engines provided in Table 7 appears small, they should be compared to the maximum hourly emissions from the boilers to determine if the routine maintenance operation of these engines could affect the annual distribution of the daily maximum 1-hour average concentrations. Each engine is indicated to be permitted for up to 100 hours of routine maintenance operation per year. Their actual operational characteristics for routine maintenance operation (e.g., separate operation of each engine less than one hour per week) during the modeled period should be provided to support treating them as intermittent sources for this modeling assessment.

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

- *Because of ultra-low sulfur fuel oil was indicated to have been used for the Auxiliary Boilers in 2015, the maximum hourly SO_2 emissions were 0.57 lbs./hr. For the other years, the maximum hourly emission rate was indicated to be 176 lbs/hr using 0.05% sulfur fuel oil. An explanation is needed because Table 6 indicates 0.5% sulfur oil was used.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission

rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

- *Although appearing appropriate, the basis for using target values of 1 TPY (Actual Emissions) within 25 km and 50 TPY (Actual Emissions) between 25 km to 50 km to include sources was not provided or explained. Nether was the use of the "significant concentration gradient" procedure. The bases for both these procedures should be provided and explained.

- *Considering most State/Local inventories of emission sources contain only allowable emissions, the procedure/process used to obtain applicable actual emissions (e.g., annual and 1-hour values) for 2013-2015 modeled period, used in both the screening of the Table 9 nearby sources and subsequent impact modeling (i.e., Ingredion Incorporated and Hanes Dye & Finishing Company), should be provided. [Note: The 20D procedure was developed/defined considering facility's total annual allowable emissions in TPY.]

- *Impact modeling was used to eliminate Ingredion Incorporated and Hanes Dye & Finishing Company from the cumulative impact assessment. Specific modeling information (e.g., emission rates, exit parameters, etc.) should be provided as well as the modeling results. The resulting isopleth maps and concentration gradient analyses used in this assessment should be provided. The maximum, not the 4th highest, modeled concentrations should be used in these analyses.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

o The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

- *The screening procedures for the removal of nearby sources from the cumulative impact

modeling should consider the magnitude of each source's impact within Belew's SIA and not just at the Belew facility location. This analysis should consider the facility's maximum impacts rather than maximum in the form of each standard (e.g., 4th highest).

- It appears that actual emissions were used for most or all nearby sources.

- *The 20D procedure is indicated in Table 9 and appears to have been used to further screen emission sources. Note that the Q value should be the maximum allowable annual emissions in TPY. Actual emissions are not appropriate for the 20D procedure. The annual allowable emissions from all sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The isopleth map showing the concentration gradient was not provided and explained. The location of the Table 9 sources in Figure 11 do not reflect the distances provided in the table.

- *The significant concentration gradient (SCG) in the vicinity of the Belews Creek Generating Station was used to determine the other SO_2 emission sources to include in the air quality impact assessment. The specific target values and procedures used in this determination the SCGs should be provided.

- *The significant impact levels (SIL) and 20D procedure have also been used in the identification of other emission facilities to include in a cumulative impact assessment. Given the sometimes conflicting results using these procedures, the criteria used in this determination should be provided.

Please let me know if you have any questions or would like to discuss any item.

Thanks…sjk

Stanley Krivo, CCM, QEP

U.S. Environmental Protection Agency

Atlanta Federal Center

61 Forsyth Street, SW

Atlanta, GA 30303-8960

Phone: 404/562-9123

Fax: 404/562-9019

To: Howard, Chris[Howard.Chris@epa.gov]
Cc: Rinck, Todd[Rinck.Todd@epa.gov]
From: Gillam, Rick
Sent: Thur 5/11/2017 1:02:56 PM
Subject: FW: SCE&G Wateree and IP Eastover 1-hr SO2 Modeling
WATEOModelingReportAndFiles_Rev4a_20170509.piz

Thanks for offering to take the lead on this Chris. I have unzipped the files in the DRR Modeling folder on the server.

From: Glass, John [mailto:glassjp@dhec.sc.gov]
Sent: Thursday, May 11, 2017 8:46 AM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: Re: SCE&G Wateree and IP Eastover 1-hr SO2 Modeling

File attached. Formal letter will follow later.

Thanks,

John

John P. Glass, Jr.
Air Modeling Section Manager
Bureau of Air Quality
S.C. Dept. of Health & Environmental Control
Office: (803)898-4074
Connect: www.scdhec.gov Facebook Twitter

From: Gillam, Rick <Gillam.Rick@epa.gov>
Sent: Wednesday, May 10, 2017 7:25:29 AM
To: Glass, John
Subject: RE: SCE&G Wateree and IP Eastover 1-hr SO2 Modeling

Hi John,

Thanks for providing the update. Unfortunately, our email system blocks all *.zip files and so the attachment did not come through. Please resend the document by just changing the extension to something else, like .piz or pretty much anything except .zip or .exe.

I hope you enjoy your day off.

-Rick

From: Glass, John [mailto:glassjp@dhec.sc.gov]
Sent: Tuesday, May 9, 2017 3:59 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Porter, Henry <porterhj@dhec.sc.gov>; Smutz, Stephen <smutzsw@dhec.sc.gov>; Howard, Chris <Howard.Chris@epa.gov>
Subject: SCE&G Wateree and IP Eastover 1-hr SO2 Modeling

Rick,

Attached are the updated modeling files for the Wateree and IP Eastover facilities. Tomorrow is a state holiday, so I will send the formal letter and files on Thursday. Please let me know if you have any questions.

Thanks,

John

John P. Glass, Jr.
Air Modeling Section Manager
Bureau of Air Quality

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May 2017

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Acronyms and Abbreviations

24/7	24 hours per day, 7 days per week
AAQS	Ambient Air Quality Standards
AFS	Air Facility System
AIG	AERMOD Implementation Guide
ASOS	Automated Surface Observing System
BAQ	Bureau of Air Quality
BPIP	Building Profile Input Program
BPIPPRIME	EPA Building Profile Input Program for PRIME
CFR	Code of Federal Regulations
DEM	Digital Elevation Model
DHEC	Department of Health and Environmental Control
DRR	Data Requirements Rule
EPA	United States Environmental Protection Agency
ESP	electrostatic precipitator
FGD	flue gas desulfurization
GEP	Good Engineering Practice
GPM	gallons per minute
g/s	grams per second
hp	horsepower
IP	International Paper
K	Kelvin
kg	kilograms
km	kilometer
kW	kilowatts
lb/hr	pounds per hour
LK	lime kiln
m	meter
µg	microgram
ug/m^3	micrograms per cubic meter
MMBtu/hr	million British thermal units per hour
MW	megawatts
NAAQS	National Ambient Air Quality Standards
NCG	non-condensable gas
NED	National Elevation Dataset
NESHAP	National Emission Standards for Hazardous Air Pollutants
NLCD	National Land Cover Database
NLCD92	USGS National Land Cover Data 1992
NO_2	nitrogen dioxide
PB	power boiler
ppb	parts per billion
PRIME	Plume Rise Model Enhancements
PTE	Potential to Emit
RB	recovery boiler

SCE&G	South Carolina Electric & Gas
SCR	selective catalytic reduction
SO_2	sulfur dioxide
STD	smelt dissolving tank
TAD	*SO_2 NAAQS Designations Modeling Technical Assistance Document*
TPY	tons per year
TRS	total reduced sulfur
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UTM	Universal Transverse Mercator

Limitations

This report summarizes work performed to date and presents the findings resulting from that work. The findings presented herein are made to a reasonable degree of scientific certainty. Exponent reserves the right to supplement this report and to expand or modify opinions based on review of additional material as it becomes available through any additional work or review of additional work performed by others.

1 Project Description

1.1 Purpose

This air quality modeling report, submitted to the South Carolina Department of Health & Environmental Control (DHEC) Bureau of Air Quality (BAQ), provides the procedures and results of a computer dispersion modeling demonstration for use in establishing the area attainment designation for the region surrounding Eastover, South Carolina with respect to the 1-hour National Ambient Air Quality Standard (NAAQS) for sulfur dioxide (SO_2). The dispersion modeling effort focuses on the area surrounding the South Carolina Electric & Gas (SCE&G) Wateree Station and the International Paper (IP) Eastover Mill, both located in Eastover, in Richland County, South Carolina.

The procedures were designed to be consistent with applicable guidance, including the August 2016 "SO_2 NAAQS Designations Modeling Technical Assistance Document" (TAD) issued in draft form by the United States Environmental Protection Agency (EPA). The procedures were also designed to be consistent with the final Data Requirements Rule (DRR) for the 2010 1-hour SO_2 primary NAAQS. This rule was published in the Federal Register on August 21, 2015[1] and is now codified as 40 CFR 51 Subpart BB.

The current version of the TAD references other EPA modeling guidance documents, including the following clarification memos:

- The August 23, 2010 "*Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard*".

- The March 1, 2011 "*Additional Clarification Regarding Applicability of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard*" (hereafter referred to as the "additional clarification memo").

[1] 80 FR 51051

Although the March 1, 2011 additional clarification memo was written primarily for the 1-hour nitrogen dioxide (NO_2) NAAQS, some of the guidance provided therein applies to the 1-hour SO_2 NAAQS after the differences in the form of the standards are taken into account. The modeling procedures also account for guidance provided by modeling staff at DHEC BAQ.

1.2 SCE&G Wateree Station Facility Description

SCE&G Wateree Station is a fossil fuel-fired electric generating plant with a rated capacity of approximately 685 megawatts (MW). SCE&G Wateree Station operates under the terms and conditions of Part 70 Air Quality Permit No. TV-1900-0013 issued by DHEC BAQ. Its permitted emission units consist of:

- two main boilers,
- an auxiliary boiler,
- ash handling operations,
- coal handling operations,
- a carbon burnout plant, and
- limestone and gypsum handling operations.

The permitted emission units that emit SO_2 consist of the two main boilers and the auxiliary boiler. The two main boilers are wall fired units, each with a nominal rating of 3,577.5 million British thermal units per hour (MMBtu/hr). The two main boilers are permitted to fire coal, synfuel, and No. 2 fuel oil. Dedicated baghouse and selective catalytic reduction (SCR) systems control emissions from each main boiler. Emissions from the two main boilers are then exhausted to a single shared stack controlled by a flue gas desulfurization (FGD) system. Use of the FGD system is mandatory per a permit revision which went into effect on January 13, 2017. The auxiliary boiler fires No. 2 fuel oil (maximum sulfur content 0.0015% by weight), has a nominal rating of 217.9 MMBtu/hr, and does not have associated emission controls. It exhausts to a dedicated stack.

Emissions of SO_2 from the stack of the two main boilers and the auxiliary boiler stack are included in the modeling analysis. The current Part 70 Air Quality Permit for SCE&G Wateree Station lists the following three intermittent sources of SO_2:

- 541 horsepower (hp) (400 kilowatt (kW)) power block emergency diesel generator,
- 317 hp (236 kW) emergency fire pump diesel engine, and
- 207 hp (154 kW) emergency scrubber quench water pump diesel engine.

Consistent with guidance for sources of intermittent emissions provided in the March 1, 2011 additional clarification memo, these three units were not included in the modeling since they are emergency units, operate intermittently, and do not operate continuously or frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. Table 1 lists the intermittent and insignificant SO_2 sources at SCE&G Wateree Station that were not included in the modeling.

Table 1 SCE&G Wateree Station Intermittent and Insignificant SO_2 Sources

Unit ID	Description	2013		2014		2015	
		Annual SO_2 Emissions (TPY)	Operating Hours	Annual SO_2 Emissions (TPY)	Operating Hours	Annual SO_2 Emissions (TPY)	Operating Hours
IA-ENG1	541 hp (400 kW) Power Block Emergency Diesel Generator	0.017	30	0.009	17	0.009	17
IA-ENG2	317 hp (236 kW) Emergency Fire Pump Diesel Engine	0.007	22	0.007	23	0.012	38
IA-ENG3	207 hp (154 kW) Emergency Scrubber Quench Water Pump Diesel Engine	0.005	24	0.024	111	0.003	15
TOTAL		**0.029**		**0.04**		**0.024**	

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1.3 IP Eastover Mill Facility Description

IP Eastover Mill is an integrated kraft pulp and paper mill. It operates under the terms and conditions of Part 70 Air Quality Permit No. TV-1900-0046 issued by DHEC BAQ. Its permitted emission units consist of the following operations:

- Woodyard,
- Pulp mill/oxygen delignification,
- Bleaching,
- Finished products,
- Recausticizing,
- Chemical recovery,
- Power boilers, and
- Miscellaneous.

Permitted sources of SO_2 at the IP Eastover Mill consist of two recovery furnaces, a non-condensable gas (NCG) incinerator, two lime kilns, two smelt dissolving tanks, and two fossil fuel-fired steam generating units. The emissions from these sources exhaust through seven stacks consisting of:

- dedicated stacks for each lime kiln (No. 1 LK and No. 2 LK) and each smelt dissolving tank (No. 1 SDT and No. 2 SDT),
- a stack for the second power boiler (No. 2 PB),
- a stack shared by the second recovery furnace (No. 2 RF) and the NCG incinerator, and
- a stack shared by the first recovery furnace (No. 1 RF) and the first power boiler (No. 1 PB).

The only dedicated SO_2 control device employed at IP Eastover Mill is the NCG Incinerator Scrubber.

Emissions of SO_2 from these seven stacks were included in the modeling analysis. The current Part 70 Air Quality Permit for IP Eastover Mill lists additional emission units which operate intermittently that also may emit SO_2. These consist of miscellaneous portable compressors,

portable generators, portable pumps, and stationary internal combustion engines. These intermittently-operated units were not included in the modeling assessment since they do not operate continuously or frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour ambient SO_2 concentrations. Table 2 lists the intermittent and insignificant SO_2 sources at IP Eastover Mill that were not included in the modeling.

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Table 2 IP Eastover Mill Intermittent and Insignificant SO_2 Sources

Unit ID	hp	Description	Max SO_2 (lb/hr)*	2013		2014		2015	
				SO_2 TPY	Hours	SO_2 TPY	Hours	SO_2 TPY	Hours
#2 Fire Water Pump	240	Supplements electric fire water pump.	0.49	0.017	70	0.02	82.5	0.01	28.6
#3 Fire Water Pump	240	Supplements electric fire water pump.	0.49	0.019	80	0.01	35.3	0.01	29.8
#2-2 Mud Tank	22	Emergency agitation in case of power failure	0.04	0.001	28.9	0.0002	7.7	0.0001	5.4
#2-1 Mud Tank	22	Emergency agitation in case of power failure	0.04	0.001	35	0.0002	7.6	0.0001	4.9
#1 Lime Kiln Emergency Drive	22	Emergency kiln rotation in case of power failure	0.04	0.001	44.5	0.001	61.6	0.001	24.3
#2 Lime Kiln Emergency Drive	22	Emergency kiln rotation in case of power failure	0.04	0.0001	5.3	0.0001	4.3	0.001	26
Powerhouse Emergency Generator	77	Emergency power for powerhouse control room 10 kW generator	0.16	0.0001	1.0	0.0001	1.0	0.0001	1.0

* Emissions are based on AP-42 Table 3.3-1 emission factor of 2.05 x 10-3 lb/hp-hr and the rated hp of the unit.

1.4 Location

SCE&G Wateree Station and IP Eastover Mill are both located in Eastover, Richland County, South Carolina. The facilities are located slightly west of the Wateree River, which forms the boundary between Richland County and Sumter County, and to the east of McCords Ferry Road, also referred to as Route 601.

The facilities are situated in generally remote, rural areas with surroundings characterized by woods and fields with no nearby residences. Terrain in this area can be characterized as rolling with some nearby hills but no significant terrain features. The facilities are approximately 135 kilometers (km) northwest (inland) of the nearest coastal area. Figure 1 shows the terrain in the area surrounding the two facilities. Figure 2 shows the land use in the area. Figure 3 shows the area surrounding SCE&G Wateree Station and IP Eastover Mill. A circle with a radius of 10 km centered on a point midway between the two facilities is plotted on Figure 2 and Figure 3 to help establish scale. The distance between SCE&G Wateree Station and IP Eastover Mill is on the order of 6.7 km. Note that some of the plotted circles are terrain following, so that they may appear to have ripples.

Figure 4 shows a close up view of the area surrounding SCE&G Wateree Station, while Figure 5 shows a close up view of the area surrounding IP Eastover Mill. In each figure, a circle with a radius of 1 km centered on the facility is plotted to establish scale.

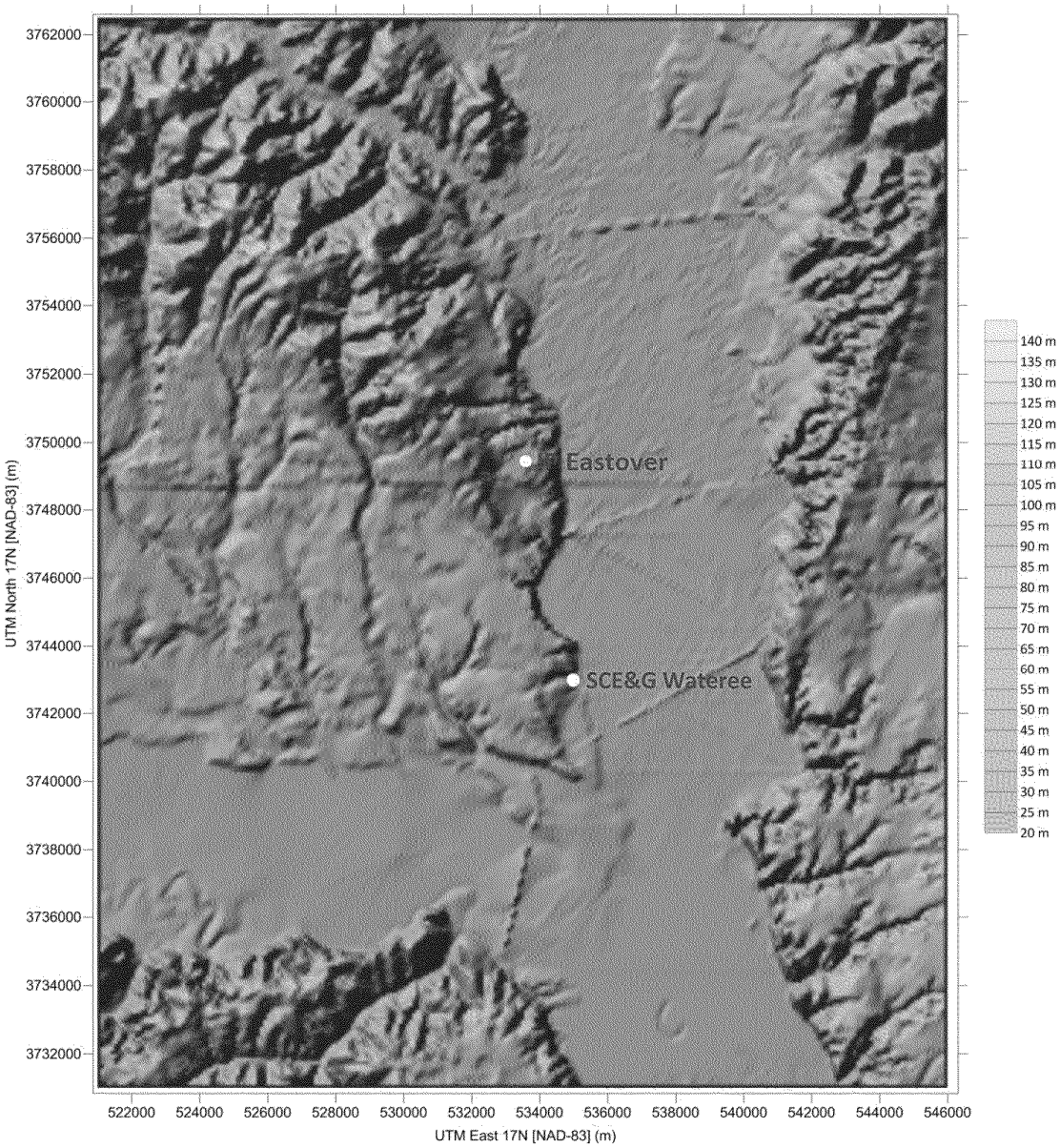

Figure 1 Terrain surrounding SCE&G Wateree Station and IP Eastover Mill

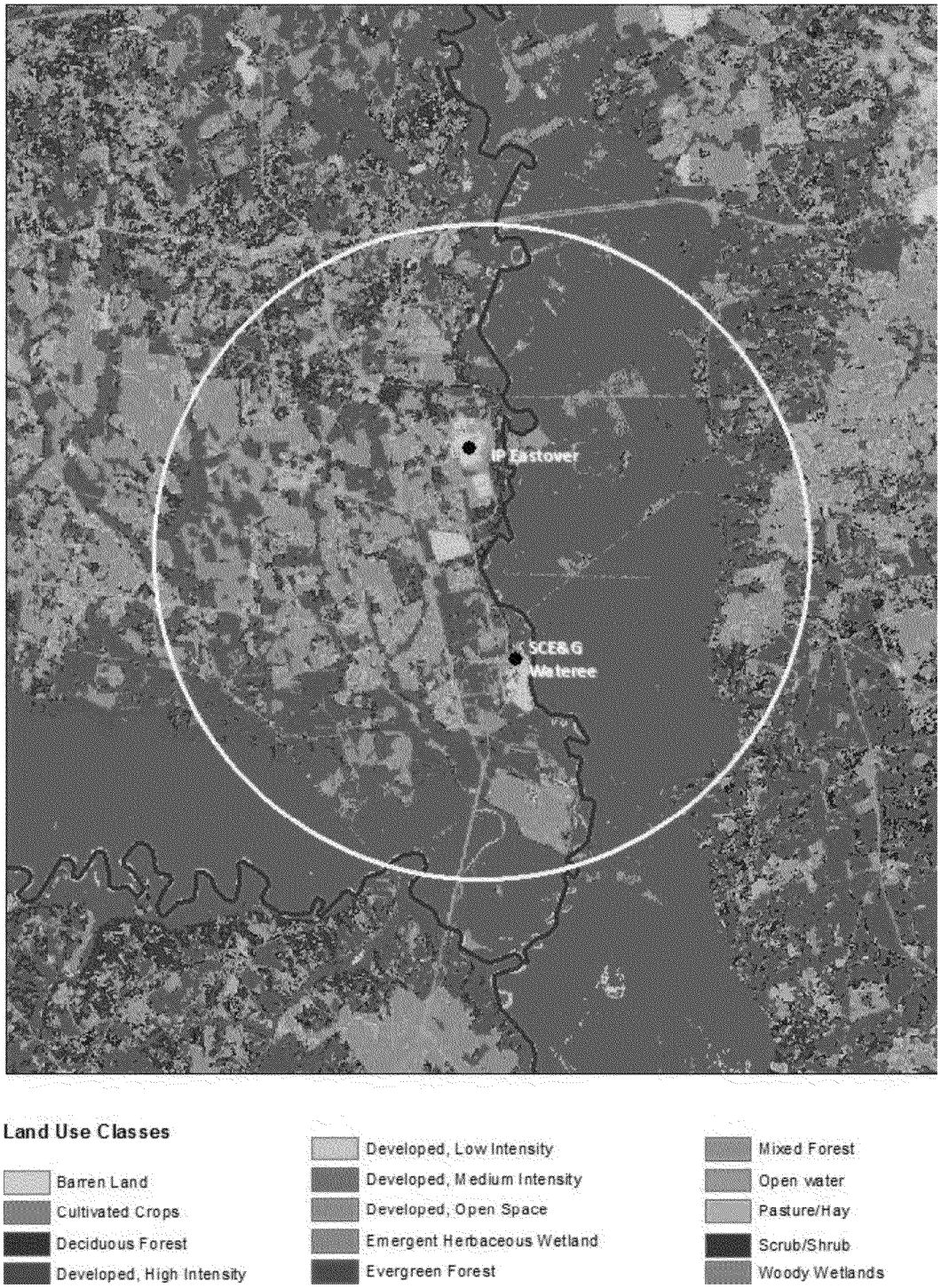

Figure 2 Land use surrounding SCE&G Wateree Station and IP Eastover Mill with 10 km radius circle

Figure 3 Area surrounding SCE&G Wateree Station and IP Eastover Mill with 10 km radius circle

Figure 4 Area surrounding SCE&G Wateree Station with 1 km radius circle

Figure 5 Area surrounding IP Eastover Mill with 1 km radius circle

1.5 Nearby Facilities

The EPA EnviroMapper[2] web interface was used to help identify stationary sources of air emissions located near SCE&G Wateree Station and IP Eastover Mill. EnviroMapper is linked to EPA's Air Facility System (AFS), which contains emissions and compliance information on stationary air pollution point sources regulated by EPA, state, and local air regulatory agencies. Searches were conducted to identify point sources located within 5 miles of either facility.

The following nearby facilities were identified:

- Kemira/Finnchem 200 Wateree Station Road, a sodium chlorate production facility,
- Kemira/Fennchem 191 Wateree Station Road, a facility that conducts anode coating and metal etching processes,
- Glasscock Company Plant 4, a ready-mix concrete manufacturing facility, and
- Specialty Minerals Inc., a facility that manufactures calcium carbonate and which is collocated at IP Eastover Mill.

Figure 6 shows the approximate location (based on coordinates in AFS) of these nearby facilities relative to SCE&G Wateree Station and IP Eastover Mill. Circles with radii of 1 km and 3 km surrounding each primary facility are also plotted to help establish scale.

Glasscock Company Plant 4 is a minor facility and does not emit SO_2. Therefore, it was eliminated from further consideration. The Kemira facility at 191 Wateree Station Road has no permitted sources of SO_2 emissions and was also eliminated from further consideration.

The Kemira facility at 200 Wateree Station Road accepted a sulfur in oil limit (0.05%) in its Conditional Major Permit to avoid being a major source. The resulting potential to emit from its boilers is 4.98 pounds per hour (lb/hr) or 21.8 tons per year (TPY) on an annual basis. This facility was retained for further consideration.

[2] http://www.epa.gov/emefdata/em4ef.home

The Specialty Minerals, Inc. facility is physically located contiguous to the IP Eastover Mill and produces precipitated calcium carbonate for use in IP's papermaking process. The resulting potential to emit from its carbonators is 2.49 lb/hr (10.91 TPY) on an annual basis. This facility was retained for further consideration.

Figure 6 Nearby facilities to SCE&G Wateree Station and IP Eastover Mill with 1 km and 3 km radius circles

2 Model Selection

AERMOD Version 16216r was used for the cumulative impact analysis for determining the appropriate attainment designation of the area surrounding SCE&G Wateree Station and IP Eastover Mill with respect to the 1-hour NAAQS for SO_2. AERMOD is recommended in the EPA "*Guideline on Air Quality Models*" for a wide range of near-field applications in all types of terrain. In addition, AERMOD contains the PRIME building downwash algorithm, which accounts for aerodynamic building downwash effects. AERMOD was run using current regulatory default options to model all sources.

The air quality dispersion modeling analyses account for potential aerodynamic building downwash effects for all modeled stacks at SCE&G Wateree Station and IP Eastover Mill. Building parameters needed by AERMOD to model potential building downwash effects were obtained using the latest version (04274) of the EPA Building Profile Input Program for PRIME (BPIPPRIME).

3 Modeling Domain

3.1 Determination of Sources to Include

3.1.1 Primary Sources

The modeling domain for the Eastover, SC SO_2 attainment area designation modeling analysis focuses on the two primary facilities that are the main subject of this modeling report, namely SCE&G Wateree Station and IP Eastover Mill. Under the DRR, a source subject to its requirements (i.e., an "applicable source") is one with actual SO_2 emissions of 2,000 TPY or more or otherwise identified by an air agency as requiring air quality characterization.[3] These two facilities were identified by DHEC BAQ as having actual SO_2 emissions for the most recent calendar year in excess of 2,000 TPY and thus are large enough to require modeling to help establish the attainment status of the surrounding area with respect to the 1-hour NAAQS for SO_2. At the request of DHEC BAQ, this report was prepared for a joint modeling analysis inclusive of both facilities.

3.1.2 Nearby Sources

The procedures used in identifying other secondary facilities to include explicitly in the dispersion modeling analysis are described below, along with sources excluded from the area designation modeling.

Current modeling guidance in the TAD states that the process of determining which nearby sources to include in the attainment area designation modeling should make use of professional judgment. Guidance in the TAD and in the referenced clarification memos states that the "*number of sources to explicitly model should generally be small*." [4]

[3] In this report, the term "principal source" is used in place of "applicable source" to provide further clarity in distinguishing the applicable sources to the additional sources ("nearby" or "background" sources) that were considered for inclusion in the cumulative impact analysis.

[4] U.S. EPA (2013) p.7

The applicable guidance in the TAD and clarification memos also mentions that any nearby sources that are expected to cause a significant concentration gradient in the vicinity of the primary sources being modeled should be included in the area designation modeling and that the impacts of any other sources should be incorporated via a consideration of background air quality concentrations.

Although some regulatory agencies have informally established minimum source emission rate thresholds below which nearby sources do not need to be explicitly included in the area designation modeling, neither EPA nor DHEC BAQ has yet done so. Consequently, a variety of considerations and technical justifications were used to select the background sources included in the cumulative impact analysis.

3.1.3 Screening Area

For the modeling, a screening area extending 50 km from each of the two primary sources was used to identify other potential nearby sources for inclusion in the analysis. Sources beyond 50 km are very unlikely to cause or contribute to a violation of the NAAQS in the vicinity of the primary sources or to cause a significant concentration gradient in the vicinity of the primary sources.

3.1.4 Screening Procedures – Initial Consideration of Emissions and Proximity

Actual emission rates (when available) and proximity to the primary sources were factors that were considered for including or excluding potential nearby sources within the screening area. Actual emission rates are appropriate for use in determining sources to include or exclude because of the focus of the area designation modeling, i.e., on estimating concentrations that would be actually measured at ambient air quality monitors.

Proximity to the primary sources is also a factor to consider for several reasons. First, the farther away a candidate source is from the primary sources, the less likely it is that the candidate source would have a significant contribution to a predicted violation of the NAAQS

due to the primary sources (or that the primary sources would have a significant contribution to predicted violations caused by the candidate source). In addition, in the additional clarification memo, EPA references a general "rule of thumb" that the distance to a maximum 1-hour predicted impact is typically on the order of 10 times the stack height and that the region of significant concentration gradients in flat terrain is on the same scale. Finally, EPA states that the process of identifying nearby sources to include in a cumulative impact analysis "*should focus on the area within about 10 kilometers of the project location in most cases*" and that the "*routine inclusion of all sources within 50 kilometers…is likely to produce an overly conservative result in most cases.*"[5]

DHEC BAQ provided county-by-county spreadsheets listing current allowable annual emissions for all facilities with air permits. Initial screening was conducted using these data to ensure that all facilities with current air permits would be considered. These data were first processed to identify the facilities that are located within 50 km of either Wateree Station or the Eastover Mill. These facilities are shown in Figure 7.

[5] http://www.epa.gov/ttn/scram/guidance/clarification/Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf p.16

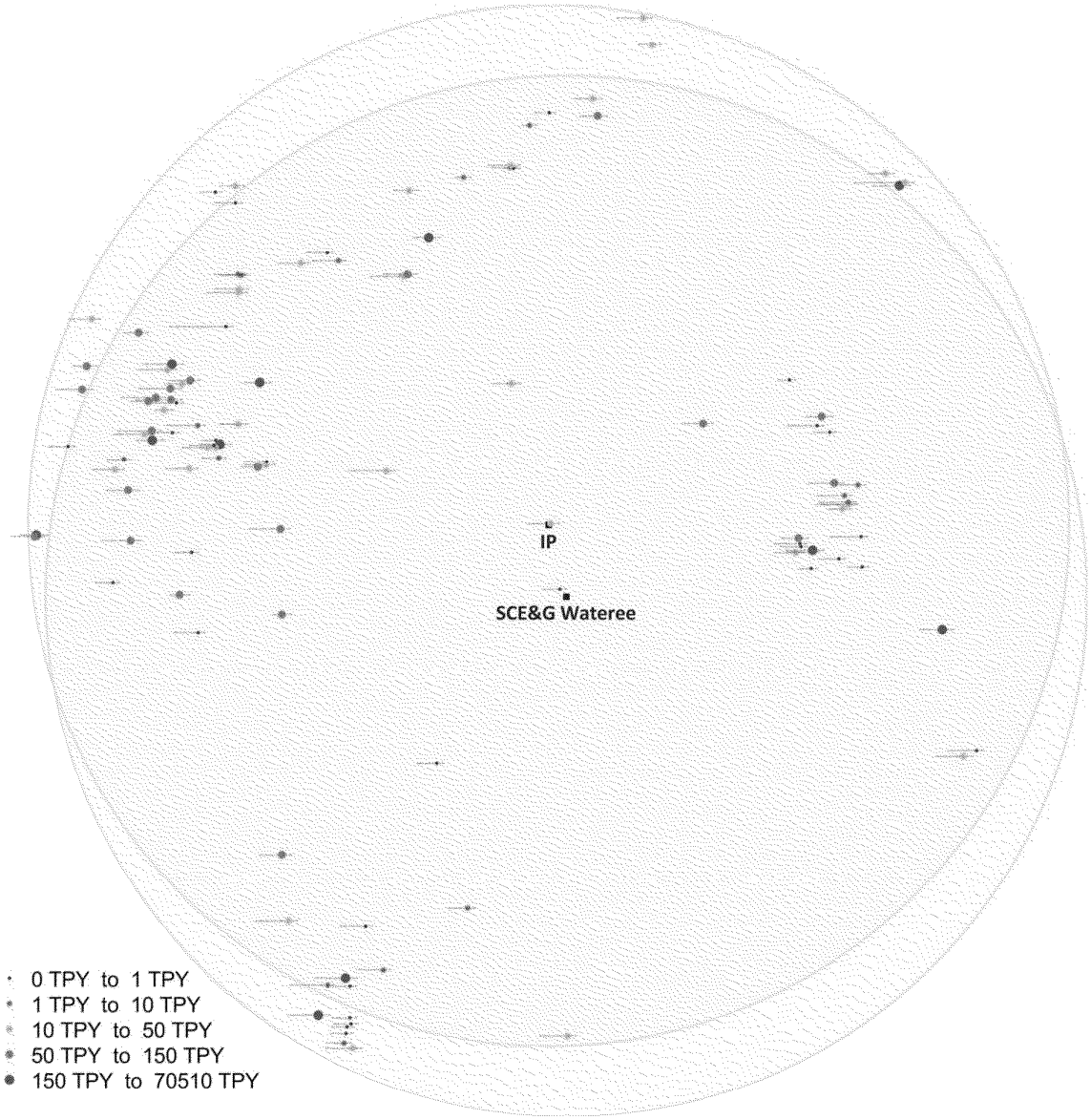

Figure 7 All permitted facilities within 50 km of IP Eastover Mill and SCE&G Wateree

Figure 7 shows that most of the nearby facilities that are candidates for inclusion in the modeling analysis are relatively distant from the primary sources, and some are only within the screening area for one of the two primary sources. Although distance is one factor to consider when selecting sources, the magnitude of their SO_2 emission rates is another.

While the background source screening analysis presented here was performed for 2012-2014, it is assumed that the conclusions from 2012-2014 can also be generally applied for the modeled period 2014-2016.

Actual annual SO_2 emission rates for the years 2012, 2013, and 2014 were obtained from DHEC BAQ for each of the candidate nearby facilities. Figure 8 shows the candidate sources with 2014 emissions greater than 1 TPY and is coded to reflect the actual annual facility-wide emission rate in 2014. The primary sources, each of which has actual annual SO_2 emission rates exceeding 2,000 TPY, are denoted by the large white circles. Invista SARL (Invista) and CMC Steel South Carolina, whose actual annual SO_2 emission rates were between 100 TPY and 1,000 TPY, are depicted by smaller purple circles. Sources with actual annual SO_2 emission rates greater than 10 TPY but less than 100 TPY are depicted by smaller blue circles. Finally, sources with actual annual SO_2 emission rates greater than 1 TPY but less than 10 TPY are depicted by still smaller yellow circles.

Figure 8 shows that the candidate nearby sources with the largest annual SO_2 emission rates, such as Invista and CMC Steel South Carolina, are located in the outer regions of the 50 km screening area.

Figure 9 is a pie chart showing the relative actual SO_2 emissions in 2014 from sources within the screening area. Approximately 92% of the SO_2 emissions are from the two primary sources, SCE&G Wateree Station (~57%) and IP Eastover Mill (~35%). Actual emissions were not available for two nearby facilities discussed earlier, Specialty Minerals, Inc. and Kemira. Consequently, their potential to emit for SO_2 was used instead in constructing the pie chart.

Figure 10 and Figure 11 show the regions within 20 km of SCE&G Wateree Station and IP Eastover Mill, respectively. In each figure, circles with radii of 10 km and 20 km from the primary source are plotted along with locations of nearby sources that had actual emissions exceeding 1 TPY for SO_2. There are no such sources within 20 km of Wateree Station. The only such source within 20 km of IP Eastover Mill is Northeast Landfill, a fairly small source of SO_2. Figure 10 and Figure 11 do not show the locations of Specialty Minerals, Inc. or Kemira (Finnechem USA). These site locations are shown in Figure 6.

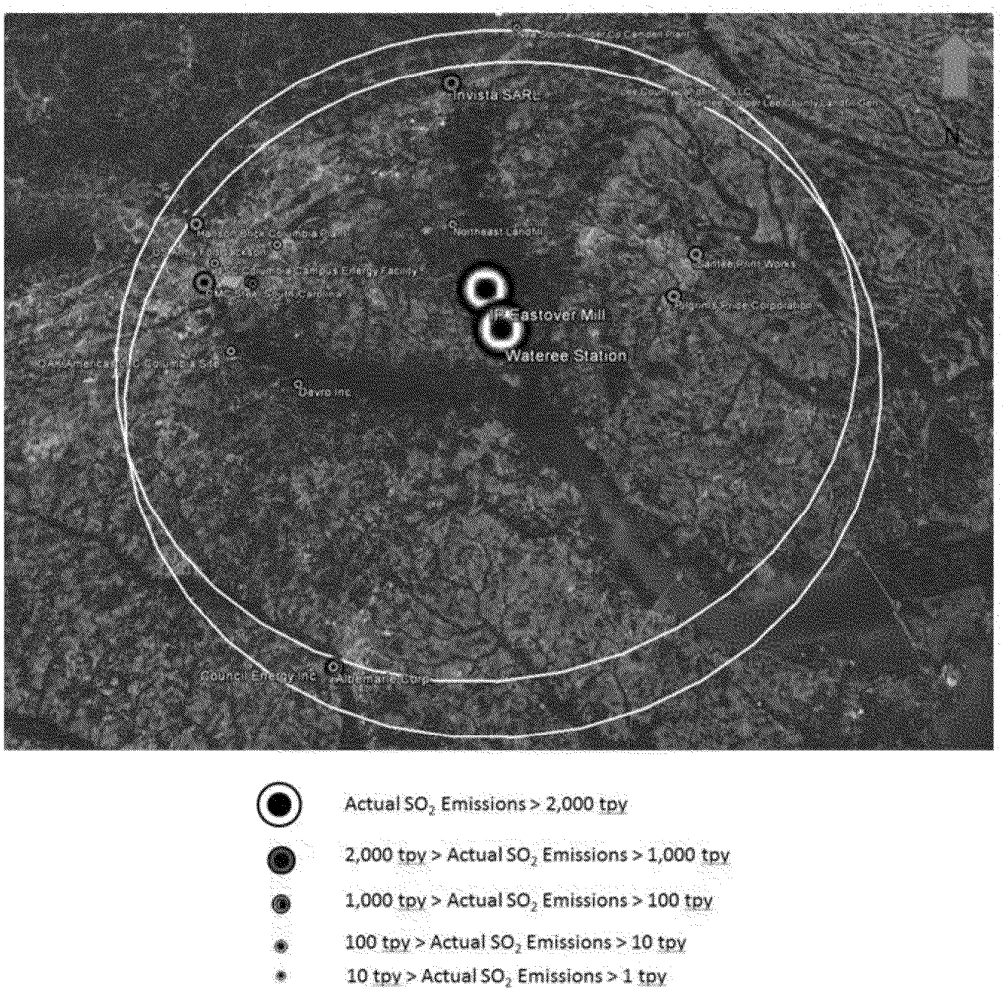

Figure 8 Candidate sources with emissions greater than 1 TPY located within 50 km of the primary sources

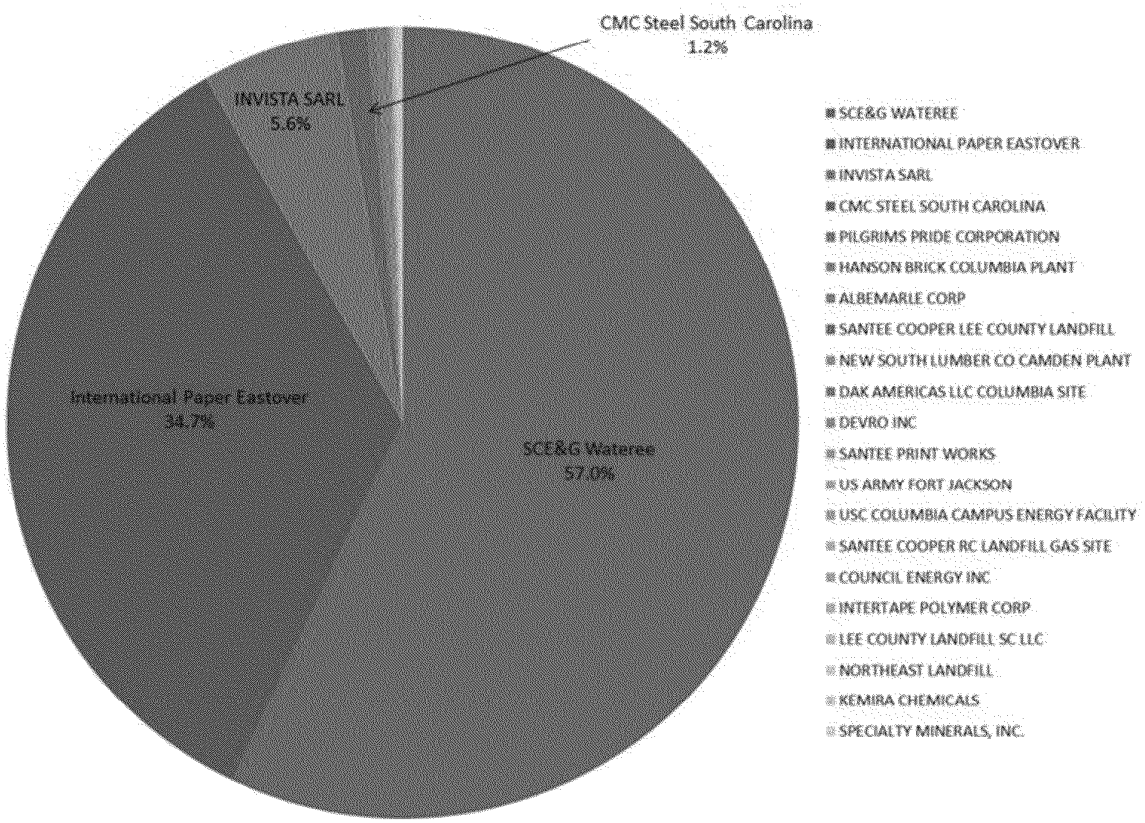

Figure 9 Relative 2014 SO_2 emissions for sources greater than 1 TPY within screening area

Figure 10 Sources nearest to SCE&G Wateree Station (10 km and 20 km radius circles)

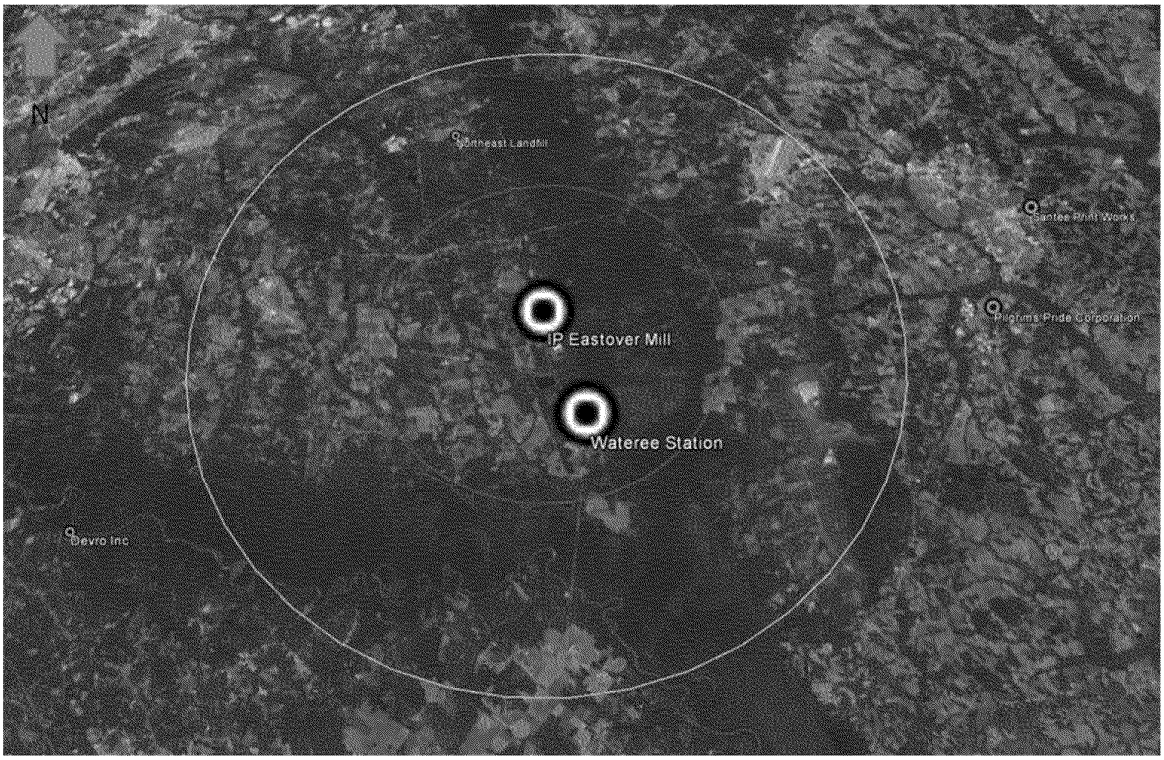

Figure 11 Sources nearest to IP Eastover Mill (10 km and 20 km radius circles)

3.1.5 20D Methodology

Although the initial consideration of emission rates and proximity to the primary sources suggested that few, if any, nearby sources need to be included in the cumulative impact analysis, an objective method was used to exclude some of the sources within the screening area.

A method commonly used and recommended by DHEC BAQ for screening nearby sources for inclusion in a cumulative impact analysis is the "20D" methodology. Originally developed by the North Carolina Department of Environment and Natural Resources, the 20D method allows for candidate nearby sources to be excluded from a cumulative analysis if their facility-wide emission rates, in tons per year, are less than 20D, where D is the distance in km between the candidate nearby source and the primary source. The 20D method was used with facility-wide annual emission rates from 2014 for each candidate source.

Although actual annual emission rates from 2014 were ultimately used in the 20D screening of sources, an initial 20D screening analysis was conducted using current allowable annual emissions provided by DHEC BAQ for facilities with air permits in each county. This initial screening was conducted to ensure that all facilities with current air permits would be considered.

The distances from each off-site facility to Wateree Station and to IP Eastover were calculated, and any facilities more than 50 km from both Wateree Station and IP Eastover were eliminated from further consideration. Table 3 lists all permitted sources within 50 km of either Wateree Station or IP Eastover, allowable annual SO_2 emissions in TPY, the calculated distances from the two principal sources, and the results of the initial 20D screening analyses. All permitted facilities within 50 km of either of the two principal sources are shown in Figure 7.

Next, the 20D methodology using annual allowable emissions was used to determine which facilities to exclude from the cumulative impact analysis. As shown in Table 3, all but six facilities (not including Wateree Station and IP Eastover) were excluded based on annual allowable emissions.

For four of the remaining sources (Santee Printworks, DAK, Columbia Energy Center, and SCE&G Coit), actual annual SO_2 emissions were obtained from information provided by DHEC BAQ. The 20D analysis was then repeated for the remaining facilities using actual annual SO_2 emissions from 2014. Emissions from 2014 are most representative of current operations. The results in Table 3 show that if actual annual facility-wide SO_2 emissions for 2014 are used in the 20D calculations, these four sources can be excluded from the cumulative impact analysis.

Actual annual emissions were not available for two sources, Specialty Minerals, Inc. and Kemira Chemicals.

Specialty Minerals, Inc. is collocated with IP Eastover Mill and will be included in the cumulative impact analysis.

Kemira Chemicals comes close to screening out with 20D when using allowable SO_2 emissions (20D = 20.2 < 21.81 TPY) which are based on a sulfur in oil limit of 0.05%. However, information provided by DHEC BAQ indicates that Kemira Chemicals is firing ultra-low sulfur diesel with a maximum sulfur content of 15 ppm (0.0015%). If the calculations are revised to account for the actual fuel used, the resulting actual SO_2 emission rate of 0.727 TPY allows Kemira Chemicals to screen out with 20D. Therefore, Kemira Chemicals was excluded from the cumulative impact analysis.

Table 3 Summary of 20D Screening Analysis

Company Name	Permit #	County Name	Allowable SO_2 TPY	UTM-17N (NAD83) East (m)	UTM-17N (NAD83) North (m)	Distance from IP (km)	Distance from SCE&G (km)	20D for IP	20D for SCE&G	Based on Allowable Emissions: EXCLUDE for IP	Based on Allowable Emissions: EXCLUDE for SCE&G	2012 Actual SO_2 TPY	2013 Actual SO_2 TPY	2014 Actual SO_2 TPY	Based on 2014 Actual Emissions: EXCLUDE for IP	Based on 2014 Actual Emissions: EXCLUDE for SCE&G
SCE&G Wateree	**1900-0013**	**Richland**	**70,509.24**	**534978.0**	**3742833.5**	**7.0**	**0.0**	**140.7**	**0.0**	**NO**	**NO**	**3531.43**	**5548.07**	**6550.28**	**NO**	**NO**
International Paper - Eastover	**1900-0046**	**Richland**	**15,279.63**	**533448.1**	**3749698.7**	**0.0**	**7.0**	**0.0**	**140.7**	**NO**	**NO**	**3737.48**	**3373.68**	**3315.23**	**NO**	**NO**
Specialty Minerals, Inc.	**1900-0145**	**Richland**	**10.91**	**533447.4**	**3749913.2**	**0.2**	**7.2**	**4.3**	**144.9**	**NO**	**YES**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Santee Print Works	2140-0003	Sumter	2,683.42	562763.5	3753793.2	29.6	29.9	592.0	597.4	NO	NO	0.17	4.70	32.82	YES	YES
DAK	0460-0029	Calhoun	2,683.18	499024.9	3747188.1	34.5	36.2	690.3	724.3	NO	NO	2.61	6.84	5.47	YES	YES
Columbia Energy Center	0460-0024	Calhoun	1,190.05	498364.8	3747719.9	35.1	36.9	702.8	738.8	NO	NO	0.76	2.05	2.00	YES	YES
SCE&G Coit	1900-0132	Richland	1,150.63	495450.0	3757210.0	38.7	42.1	774.7	841.2	NO	NO	0.14	0.14	0.05	YES	YES
Kemira Chemicals	1900-0172	Richland	21.81	534356.4	3743627.2	6.1	1.0	122.8	20.2	YES	NO		0.727		YES	YES
Trinity Industries, Inc.	0460-0023	Calhoun	0.02	522535.0	3726867.0	25.3	20.2	506.1	404.8	YES	YES					
SC Air National Guard-McEntire Joint NGB	1900-0250	Richland	10.21	517688.0	3754987.0	16.6	21.1	332.5	422.7	YES	YES					
Northeast Landfill	1900-0178	Richland	23.70	529700.0	3763388.0	14.2	21.2	283.9	424.4	YES	YES					
Shaw Air Force Base	2140-0004	Sumter	97.60	548122.2	3759592.4	17.7	21.3	354.0	426.0	YES	YES					
EMS Grivory America	2140-0054	Sumter	46.16	556961.2	3747135.2	23.7	22.4	473.0	448.0	YES	YES					
Kiln Direct, Inc.	2140-0142	Sumter	75.78	557257.0	3748537.2	23.8	23.0	476.7	460.0	YES	YES					
International Paper - Sumter	2140-0102	Sumter	0.04	557416.5	3747991.2	24.0	23.0	480.6	460.5	YES	YES					
Textilease Corporation	2140-0117	Sumter	0.33	557488.5	3747701.2	24.1	23.0	482.5	460.6	YES	YES					
Cooper Tools	2140-0022	Sumter	0.03	558462.0	3745602.0	25.3	23.6	506.9	472.9	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

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										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
Sumter Heat & Power, LLC	2140-0149	Sumter	2.32	558576.0	3747209.0	25.3	24.0	505.0	480.0	YES	YES					
Pilgrims Pride Corporation	2140-0006	Sumter	374.45	558608.7	3747373.0	25.3	24.1	505.4	481.3	YES	YES					
Peace Textile America	2140-0110	Sumter	0.56	561131.0	3746550.0	27.9	26.4	557.2	528.3	YES	YES					
Devro	0460-0003	Calhoun	99.18	507652.0	3741223.2	27.2	27.4	543.1	547.5	YES	YES					
Carolina Filters	2140-0111	Sumter	18.88	561504.0	3751316.0	28.1	27.8	562.0	557.0	YES	YES					
Tuomey Regional Medical	2140-0050	Sumter	56.68	560697.0	3753809.0	27.6	28.0	551.1	559.3	YES	YES					
Westinghouse Electric Company	1900-0050	Richland	86.00	507506.2	3749420.2	25.9	28.3	518.9	565.0	YES	YES					
Carolina Furniture Works, Inc	2140-0014	Sumter	3.93	561675.3	3752603.0	28.4	28.4	567.5	568.6	YES	YES					
Florence Concrete Products	2140-0061	Sumter	25.99	562020.0	3751752.0	28.6	28.5	572.9	569.5	YES	YES					
Nova Molecular Technologies, Inc.	2140-0150	Sumter	35.46	562048.0	3751753.0	28.7	28.5	573.5	570.0	YES	YES					
City of Sumter	2140-0118	Sumter	0.04	563360.0	3745756.0	30.2	28.5	603.4	570.6	YES	YES					
Giant Resource Recovery (GRR!)	2140-0038	Sumter	4.82	562065.5	3751962.2	28.7	28.6	574.1	571.7	YES	YES					
Continental Tire the Americas, LLC	2140-0147	Sumter	0.35	563261.0	3748673.0	29.8	28.9	596.6	577.6	YES	YES					
Caterpillar Precision Pin Products	2140-0125	Sumter	0.01	559070.0	3759371.3	27.4	29.2	547.7	584.4	YES	YES					
Becton-Dickinson	2140-0018	Sumter	0.04	560258.0	3758749.0	28.3	29.9	565.9	597.5	YES	YES					
Garnay, Inc.	2140-0060	Sumter	0.00	556402.0	3763723.0	26.9	29.9	538.0	598.5	YES	YES					
Madison Industries	2140-0047	Sumter	2.32	563001.0	3753630.0	29.8	30.0	596.3	600.6	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

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										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
CR Jackson Inc	9900-0254	PORTABLE	101.62	559517.0	3760234.0	28.1	30.1	562.3	601.6	YES	YES					
CameronLumber Co	0460-0001	Calhoun	1.76	525501.0	3712935.0	37.6	31.4	752.3	627.3	YES	YES					
American-Italian Pasta	1900-0130	Richland	46.25	506130.0	3755590.0	27.9	31.5	558.9	630.9	YES	YES					
MARS PETCARE US, INC.	1900-0083	Richland	0.96	506217.7	3755888.3	27.9	31.6	558.5	631.7	YES	YES					
Jushi (USA), Ltd.	1900-0284	Richland	86.90	505334.7	3755382.3	28.7	32.2	573.6	643.8	YES	YES					
Santee Cooper Richland Co. Landfill	1900-0224	Richland	12.91	519338.5	3773606.8	27.8	34.5	555.2	690.4	YES	YES					
Richland County Landfill	1900-0148	Richland	94.83	519723.0	3773825.0	27.8	34.5	555.1	690.9	YES	YES					
Starbucks Coffee Company	0460-0027	Calhoun	0.20	499610.7	3739491.3	35.3	35.5	706.9	710.5	YES	YES					
WJBD VA Hospital	1900-0023	Richland	19.97	503456.9	3759519.5	31.6	35.7	631.2	713.3	YES	YES					
Fort Jackson	1900-0016	Richland	504.88	505531.6	3763477.0	31.1	36.0	622.6	719.2	YES	YES					
Hospital Services	1900-0100	Richland	1.45	501599.0	3756274.5	32.5	36.0	650.4	719.7	YES	YES					
Grant Clarendon, Inc	0680-0046	Clarendon	247.04	571067.4	3739758.8	38.9	36.2	778.2	724.4	YES	YES					
Eastman Chemical	0460-0030	Calhoun	0.26	498996.1	3747157.2	34.5	36.2	690.9	724.8	YES	YES					
Anchor Continental	1900-0033	Richland	365.25	501695.8	3757600.6	32.7	36.4	654.4	728.2	YES	YES					
Waste 2 Energy	1900-0263	Richland	12.88	501296.0	3757291.5	33.0	36.7	660.7	733.1	YES	YES					
REA Construction Co	9900-0088	PORTABLE	76.21	507641.0	3718105.0	40.8	36.9	815.9	737.2	YES	YES					
SMI-Owens Steel Company	1900-0176	Richland	0.00	501119.7	3757491.8	33.3	36.9	665.1	737.9	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

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Sea Hunt Boats	1900-0234	Richland	0.04	501320.0	3757960.0	33.2	36.9	663.5	738.0	YES	YES					
Welchem US	1380-0017	Kershaw	184.57	521759.3	3777410.7	30.1	37.0	601.5	740.4	YES	YES					
The Regional Medical Center	1860-0063	Orangeburg	0.53	515723.2	3711213.0	42.4	37.0	847.4	740.4	YES	YES					
Carbon	9900-0447	PORTABLE	76.21	497844.0	3743087.0	36.2	37.1	724.3	742.7	YES	YES					
IBP Carolina Cooled Meats	1900-0144	Richland	23.54	500556.2	3757274.3	33.8	37.3	675.1	746.6	YES	YES					
City of Columbia WWTP	1900-0021	Richland	12.70	498722.5	3755202.0	35.2	38.3	703.2	766.1	YES	YES					
Clemson Univ. Livestock Lab	1900-0048	Richland	6.92	513082.2	3776527.4	32.6	39.0	651.4	780.1	YES	YES					
Associated Asphalts Columbia, LLC	9900-0025	PORTABLE	6.26	499559.0	3759400.0	35.3	39.1	705.0	782.0	YES	YES					
Husqvarna Outdoor Products	1860-0043	Orangeburg	2.16	517380.3	3707046.3	45.6	39.9	911.6	797.6	YES	YES					
FN Manufacturing, Inc.	1900-0052	Richland	0.20	512027.5	3775896.5	33.8	40.2	676.8	805.0	YES	YES					
Carolina Ceramics, Inc.	1900-0007	Richland	19.99	509448.6	3774857.1	34.8	41.0	695.4	819.1	YES	YES					
Orangeburg Dept. of Public Utilities	1860-0073	Orangeburg	34.43	508301.0	3711707.0	45.6	41.0	911.2	819.9	YES	YES					
Consolidated Systems Inc	1900-0040	Richland	0.14	497152.3	3758716.3	37.4	41.0	748.0	820.5	YES	YES					
Clarendon Memorial Hospital	0680-0024	Clarendon	18.92	573123.0	3727549.5	45.4	41.1	908.8	821.9	YES	YES					
Shawmut	1380-0073	Kershaw	0.01	529884.0	3784042.0	34.5	41.5	690.6	830.4	YES	YES					
Unimin	1380-0016	Kershaw	1.89	525100.0	3783180.0	34.5	41.5	690.1	830.8	YES	YES					
PowerSecure, Inc.	1380-0062	Kershaw	4.16	529538.0	3784117.0	34.6	41.6	692.8	832.8	YES	YES					

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Providence Hospital	1900-0061	Richland	69.69	498817.1	3763689.3	37.4	41.7	747.0	834.9	YES	YES					
Jarden Applied Materials (Formerly Shakespeare Monofilament)	1900-0036	Richland	0.03	502282.0	3768819.0	36.6	41.8	731.3	835.3	YES	YES					
Kawashima Textile USA	1380-0048	Kershaw	12.87	529638.0	3784321.0	34.8	41.8	696.6	836.6	YES	YES					
USC Central Energy Facilities	1900-0143	Richland	0.65	497549.7	3761555.9	37.8	41.8	756.1	837.0	YES	YES					
HBD Industries	1380-0018	Kershaw	46.43	519881.3	3781913.4	35.0	41.9	699.1	837.9	YES	YES					
Southwoods Lumber & Millwork	0680-0005	Clarendon	0.57	574369.0	3728097.0	46.3	42.1	925.5	841.1	YES	YES					
Orangeburg County Biomass	1860-0123	Orangeburg	11.52	535055.0	3700750.0	49.0	42.1	979.5	841.7	YES	YES					
Lanier Construction Company	9900-0035	PORTABLE	67.45	493137.0	3748295.0	40.3	42.2	806.7	843.9	YES	YES					
Benedict College	1900-0211	Richland	26.02	498042.1	3763372.3	38.0	42.3	759.1	845.2	YES	YES					
South Carolina State University	1860-0065	Orangeburg	279.40	513786.0	3706257.0	47.7	42.3	953.7	845.4	YES	YES					
Office of General Services energy fac.	1900-0162	Richland	131.05	497000.0	3761842.0	38.4	42.5	768.4	849.4	YES	YES					
CMC Steel SC	1560-0087	Lexington	317.02	495229.9	3757965.9	39.1	42.5	782.0	850.6	YES	YES					
ALSCO	1900-0239	Richland	27.99	496331.0	3760863.0	38.8	42.6	775.2	852.9	YES	YES					
Cactus Family Farms	1860-0007	Orangeburg	0.04	514190.0	3705481.0	48.2	42.7	964.6	855.0	YES	YES					
Sloan Construction Company-Cayce	9900-0060	PORTABLE	76.21	495154.0	3758872.0	39.4	42.9	787.6	858.6	YES	YES					

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Table 3 (Cont'd.) Summary of 20D Screening Analysis

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										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
Office of General Service DHEC lab	1900-0109	Richland	23.91	503495.0	3772060.0	37.4	43.0	747.6	859.2	YES	YES					
Palmetto Baptist Medical Center	1900-0044	Richland	112.51	496930.0	3762909.0	38.8	43.0	776.7	860.4	YES	YES					
Office of General Services	1900-0197	Richland	14.87	503550.5	3772416.5	37.5	43.2	751.0	863.2	YES	YES					
REA Construction Co	9900-0083	PORTABLE	127.02	492890.0	3753120.0	40.7	43.3	814.0	866.5	YES	YES					
Southeastern Concrete Products	1560-0063	Lexington	46.65	494475.0	3758564.0	40.0	43.5	799.4	869.0	YES	YES					
Diamond Pet Food	1560-0050	Lexington	0.18	491447.0	3744269.0	42.4	43.6	847.0	871.1	YES	YES					
City of Orangeburg Dept of Public Utilities	1860-0117	Orangeburg	1.44	512050.0	3705591.0	49.0	43.7	980.5	874.7	YES	YES					
Office of General Services Cola. Bldg.	1900-0161	Richland	74.36	495555.0	3762058.0	39.9	43.9	797.2	877.2	YES	YES					
Providence Northeast	1900-0202	Richland	9.99	503762.0	3773727.0	38.2	43.9	763.8	878.4	YES	YES					
Richland Memorial Hospital	1900-0062	Richland	213.74	497097.3	3765249.3	39.5	44.0	790.7	880.3	YES	YES					
Office of General Service DHEC	1900-0104	Richland	23.23	496666.0	3764710.0	39.7	44.1	794.5	882.4	YES	YES					
The Ritedose Corporation	1900-0137	Richland	8.37	503455.5	3773800.0	38.5	44.2	769.5	883.8	YES	YES					
Columbia Farms	1560-0121	Lexington	130.09	494809.1	3761710.3	40.5	44.4	809.3	887.7	YES	YES					
Backman Lumber	1560-0188	Lexington	1.00	492474.0	3756110.0	41.5	44.5	829.5	890.6	YES	YES					
Columbia Farms/OSI LP	1560-0115	Lexington	31.62	491623.0	3755101.0	42.2	45.1	843.5	901.1	YES	YES					
Federal Mogul Corp	1860-0094	Orangeburg	0.05	514185.2	3702462.9	51.0	45.4	1020.2	908.2	YES	YES					

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										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
Invista	1380-0003	Kershaw	3.93	531441.7	3788160.1	38.5	45.5	770.3	909.3	YES	YES					
Okonite Company	1860-0082	Orangeburg	0.06	514276.2	3701893.9	51.5	45.9	1030.1	917.5	YES	YES					
Mars Petcare US	1860-0090	Orangeburg	0.11	513914.2	3701597.0	51.9	46.3	1038.3	926.1	YES	YES					
DeRoyal Textiles	1380-0019	Kershaw	61.76	538003.4	3789042.5	39.6	46.3	792.1	926.2	YES	YES					
Oak-Mitsui, Inc.	1380-0038	Kershaw	0.19	533318.0	3789377.0	39.7	46.6	793.6	931.5	YES	YES					
SI Group (formerly Albemarle)	1860-0004	Orangeburg	167.68	511129.4	3702734.3	52.0	46.7	1040.0	933.1	YES	YES					
Trinity Industries	1860-0110	Orangeburg	0.02	513824.0	3700985.0	52.5	46.9	1050.4	937.8	YES	YES					
City of Orangeburg	1860-0085	Orangeburg	8.79	513640.2	3700074.0	53.4	47.8	1068.6	955.8	YES	YES					
Gulbrandsen Manufacturing	1860-0080	Orangeburg	32.94	514451.0	3699565.0	53.6	47.9	1072.2	957.8	YES	YES					
Kendall Company	1380-0001	Kershaw	36.66	537505.6	3790722.9	41.2	48.0	824.5	959.1	YES	YES					
Hanson Brick	1900-0010	Richland	97.17	493891.3	3768240.8	43.7	48.3	873.7	966.2	YES	YES					
Intertape Polymer Corp.	1900-0274	Richland	0.04	503222.0	3780724.0	43.3	49.4	866.3	988.8	YES	YES					
Akebono Brake Corp.	1560-0133	Lexington	0.82	487140.0	3757380.0	46.9	50.0	938.8	1000.0	YES	YES					
Lexington Medical Center	1560-0055	Lexington	122.07	488461.0	3762835.0	46.9	50.6	937.3	1012.7	YES	YES					
Arclin Surfaces	1900-0093	Richland	20.89	503192.2	3782356.4	44.5	50.7	890.4	1014.4	YES	YES					
Lee County Landfill SC, Inc	1540-0029	Lee	197.06	566932.0	3782360.0	46.8	50.8	935.5	1016.5	YES	YES					
Palmetto Paving	9900-0478	PORTABLE	17.08	565595.0	3783533.0	46.7	50.9	933.4	1018.6	YES	YES					

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										EXCLUDE for IP	EXCLUDE for SCE&G				EXCLUDE for IP	EXCLUDE for SCE&G
CR Jackson	9900-0036	PORTABLE	101.62	488894.0	3765056.0	47.1	51.2	942.5	1023.2	YES	YES					
US Silica, Inc.	1560-0005	Lexington	295.21	484067.6	3748816.0	49.4	51.3	987.8	1025.2	YES	YES					
Columbia Silica Sand, Inc	1560-0037	Lexington	65.26	483900.0	3748686.0	49.6	51.4	991.2	1028.2	YES	YES					
Santee Cooper Lee County Landfill Gas to Energy Facility	1540-0031	Lee	17.04	567509.6	3782655.4	47.4	51.4	947.9	1028.4	YES	YES					
Hueck Foils, Inc.	1900-0146	Richland	0.05	501275.0	3781767.0	45.4	51.5	908.5	1029.9	YES	YES					
SC Dept of Corrections	1900-0121	Richland	28.29	489370.0	3769550.0	48.3	52.9	966.8	1057.1	YES	YES					
SRE Kershaw	1380-0077	Kershaw	30.13	543200.0	3795916.0	47.2	53.7	944.7	1074.3	YES	YES					
New South Lumber Co. Inc.	1380-0025	Kershaw	13.86	542330.0	3798504.0	49.6	56.2	992.1	1123.1	YES	YES					

ED_001261A_00001656

Based on experience and best professional judgment, all other sources in the screening area, besides the two primary sources (SCE&G Wateree Station and IP Eastover Mill) and Specialty Minerals, Inc. were excluded from the cumulative impact analysis.

3.2 Receptor Grid

A Cartesian (rectangular) receptor network was used for the cumulative impact analysis for attainment area designation purposes. The network, described below, includes a series of nested grids roughly centered on each primary facility (SCE&G Wateree Station and IP Eastover Mill).

An inner grid of approximately 10,000 receptors with a spacing of 100m extends outward from each primary facility boundary to a distance of approximately 1 km and covers an area of approximately 7 km x 16.5 km. An intermediate grid of approximately 3,000 receptors with a spacing of 250m extends from the outer edge of the 100m spaced receptor grid out to a distance of approximately 5 km from the two facilities, and the outer boundary covers an area of approximately 15 km x 21 km. An outer grid of approximately 2,000 receptors with a spacing of 500m extends from the outer edge of the 250m spaced receptor grid out to a distance of approximately 10 km from the two facilities, and the outer boundary covers an area of approximately 25 km x 31 km. Receptors within the boundaries of SCE&G Wateree Station or IP Eastover Mill were excluded.

Additionally, receptors at a spacing of no greater than 25m were placed along each of the primary facility property boundaries, with approximately 350 receptors along the Wateree Station property boundary and approximately 1,250 receptors along the Eastover Mill property boundary. The property boundaries are defined in a manner consistent with prior modeling analyses that have been submitted to DHEC BAQ.

The resulting total number of receptors is approximately 17,000. A plot of the proposed receptor grid is shown in Figure 12. The receptor resolution used in the modeling meets or exceeds that recommended in DHEC BAQ guidance and in the TAD.

A close-up view of the SCE&G Wateree Station modeled ambient air boundary is shown in Figure 13. The ambient air boundary is comprised of the physical barrier of the Wateree River and fencing that is controlled/patrolled by security that is on-site 24 hours per day, 7 days per week (24/7). This ambient air boundary is the same as the ambient air boundary used in previous air dispersion modeling demonstrations.

A close-up view of the IP Eastover Mill modeled ambient air boundary is shown in Figure 14. The ambient air boundary is comprised of physical barriers, fencing, signage, and areas that are controlled/patrolled by mill security that is on-site 24/7. The Eastover property is large and diverse. In addition to paper manufacturing, the facility includes an integrated woodyard, extensive log storage, and an onsite landfill. Non-industrial land use within the property includes the employee training center, landscaped areas, agricultural fields, forestry test plots, and actively managed forestlands. The mill site is home to an extensive wildlife population. The Eastover Mill ambient air boundary includes all of these areas. Each portion of the ambient air boundary is described in more detail below.

The eastern portion of the ambient air boundary runs along the Wateree River. The river represents a physical barrier that restricts public access to the mill property which leads directly to the river bank. Along the river bank there is a sharp embankment with dense underbrush that is difficult to navigate and that acts as a strong deterrent to public access to mill property. Signs are installed at areas potentially accessible to the public and on the railroad right of way.

The southern portion of the ambient air boundary runs along a railroad that traverses the mill property from the river all the way to state highway 601. The mill owns property on both sides of the railroad right of way. The railroad also represents a physical barrier that restricts public access. The railroad right of way includes a steep embankment up from the Wateree River on the east side of the right of way along with a locked gate and no trespassing signs at the intersection of state highway 601. North of the railroad, there are locked gates, drainage canals, berms, and dense forest and underbrush in areas that are difficult to navigate, all of which act as strong deterrents to public access to mill property.

The southwestern portion of the ambient air boundary runs along state highway 601 from the railroad to the main plant entrance road. The mill property runs right up to state highway 601. This portion of the ambient air boundary is controlled by a locked gate and drainage canals that impede public access. There is also a considerable amount of plant personnel (including security) that patrol the main plant entrance 24/7. Trespassers along this portion of the ambient air boundary would be escorted off mill property by plant security.

The northwestern and northern portion of the ambient air boundary runs from the main plant entrance on state highway 601 north and around to the Wateree River. The mill owns multiple land parcels in this area, which are primarily dedicated to forestry and wildlife management. Public access to this area is controlled by a combination of physical barriers (including drainage canals, fencing, soil embankments, i.e. dense forest and underbrush), installed controls (fencing, locked gates and No Trespassing signs), and surveillance/patrol by mill security. These barriers make it difficult (and unlawful) for the public to gain access and spend prolonged amounts of time on the mill property. The adjacent properties owned by others are primarily forest lands and several residential properties; receptors will be placed on all adjacent properties.

Receptors were also placed at the location of the two nearest ambient SO_2 monitors (Parklane and Congaree Bluff).

Guidance in Section 4.2 of the TAD indicates that receptors are not required in areas, such as water bodies, where placement of a monitor would not be feasible. To be conservative, receptors in such areas were not excluded.

The AERMAP preprocessor (Version 11103) was used to obtain receptor elevations and hill heights for the receptors modeled in AERMOD. AERMAP was run with 30 meter National Elevation Dataset (NED) Digital Elevation Model (DEM) GeoTIFF format files obtained from the U.S. Geological Survey (USGS).

The modeling uses a Universal Transverse Mercator (UTM) coordinate system. Coordinates are in Zone 17N and the datum is NAD83.

The receptor grid was sized such that there are no predicted SO_2 concentrations near or above the NAAQS at any receptors near the edge of the grid. The receptor spacing is no greater than 100m in all areas where total predicted concentrations (including background concentrations) are within 10% of the NAAQS.

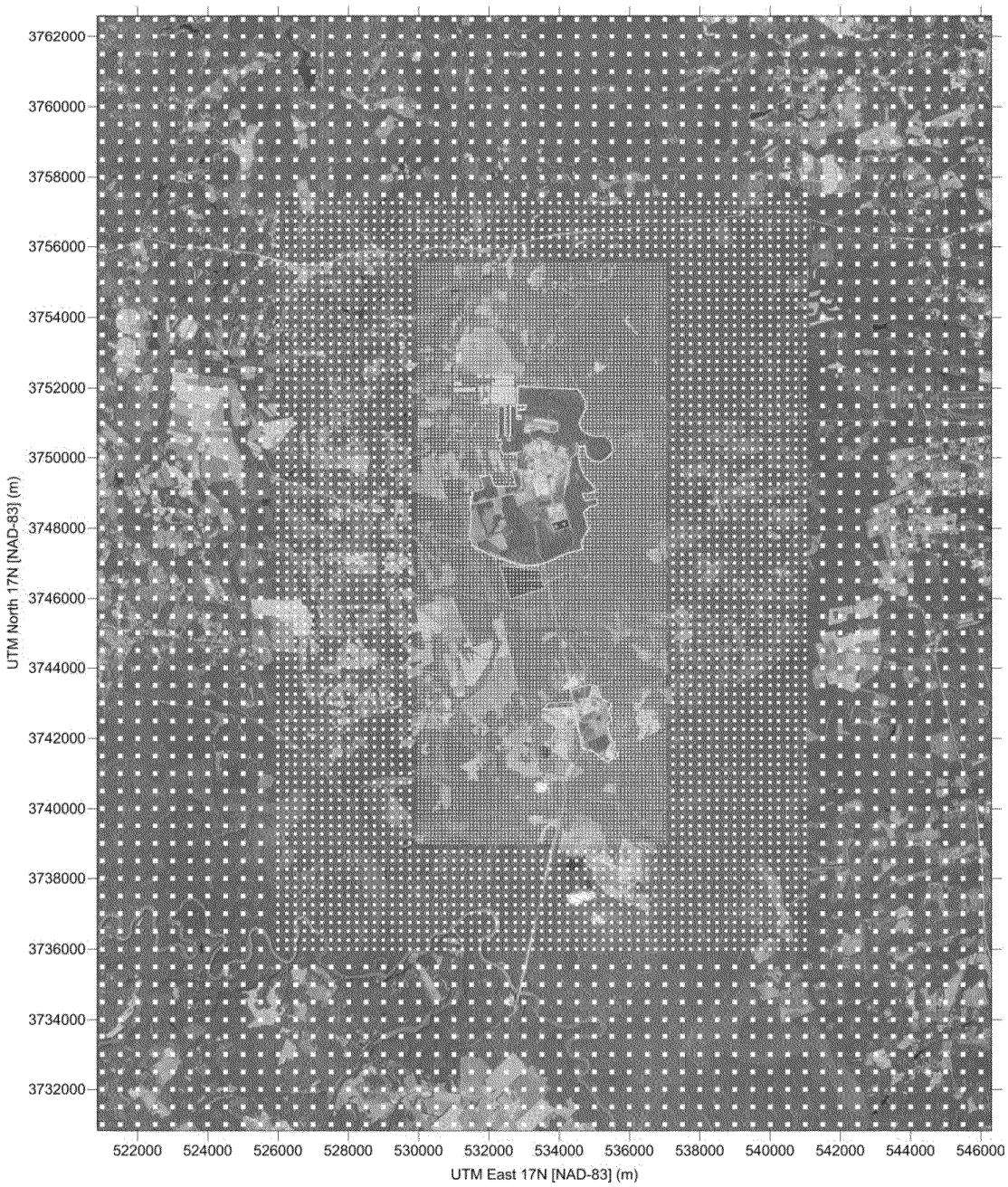

Figure 12 Plot of Cartesian and property boundary receptors

Figure 13 SCE&G Wateree Station ambient air boundary

Figure 14 IP Eastover Mill ambient air boundary

4 Emission Rates and Source Characterization

The emission rates used in the modeling analyses are listed below in Sections 4.1 and 4.2.

4.1 SCE&G Wateree Station Source Data

Table 4 SCE&G Wateree Station SO_2 Constant Emission Rates and Source Parameters

Stack ID	SO_2 Emission Rate (lb/hr)	SO_2 Emission Rate (g/s)	Stack Height (m)	Exit Velocity (m/s)	Stack Diameter (m)	Stack Temperature (K)
Wat1	Actual Hourly	Actual Hourly	91.44	Actual Hourly	5.89	Actual Hourly
Wat2	Actual Hourly	Actual Hourly	91.44	Actual Hourly	5.89	Actual Hourly
WatC	Actual Hourly	Actual Hourly	121.92 (Actual)	Actual Hourly	8.53	Actual Hourly
UB12	2,687.3	338.6	106.81 (GEP)	16.30	8.53	327.00
AB1	0.33	0.04	13.72	21.34	0.10	605.37

SCE&G Wateree Station was modeled using both actual hourly and constant emission rates. Following the January 13, 2017 permit revision, use of the FGD is no longer a voluntary permit condition. Presently and in future standard operations, the two main boilers exhaust through shared stack UB12 with all emissions controlled by the FGD. In past operations, however, emissions from the two main boilers could either exhaust directly from the uncontrolled dedicated main boiler stacks (Wat1 and Wat2), through the shared stack (WatC) controlled by the FGD, or some combination thereof. For the purposes of demonstrating that the area both was and will continue to be in attainment with respect to the 1-hour NAAQS for SO_2, SCE&G Wateree Station was modeled using actual hourly emission rates over the period 2014-2016 as well as with constant emission rates expected to be higher than any future actual emissions. Table 4 provides the SO_2 emission rates and stack parameters used for modeling SCE&G Wateree Station.

The constant modeled emission rate of 2,687.3 lb/hr for UB12 is lower than the maximum controlled potential to emit (PTE) of 3,339.5 lb/hr, but is expected to be higher than any future actual emissions. SCE&G has applied for and expects to receive a revised air permit from DHEC BAQ with a maximum emission rate limit of 2,687.3 lb/hr for stack UB12. The emission rate listed for AB1 represents uncontrolled PTE based on combusting No. 2 fuel oil with 0.0015% sulfur content by weight.

The WatC/UB12 actual stack height of 121.92m for the shared stack exceeds the GEP formula stack height of 106.81m listed. Actual stack height was used for the modeling analysis using actual emission rates, and GEP formula height was used for the constant emissions modeling analysis.

SCE&G Wateree Station includes three emergency generators. These are described in Table 1, are intermittent SO_2 emission sources, and were not included in the modeling per the March 1, 2011 additional clarification memo.

4.2 IP Eastover Mill Source Data

Table 5 IP Eastover Mill SO_2 Constant Emission Rates and Source Parameters

Stack ID	SO_2 Emission Rate (lb/hr)	SO_2 Emission Rate (g/s)	Stack Height (m)	Exit Velocity (m/s)	Stack Diameter (m)	Stack Temperature (K)
371A	11.04	1.39	53.89	10.70	1.31	329.82
372A	15.84	2.00	53.89	21.31	1.80	518.15
381C	4.20	0.53	75.99	6.49	1.40	349.26
382B	9.36	1.18	75.99	8.41	1.80	350.93
381A/501A	606.91	76.47	86.11	17.19	4.11	459.26
382A/331A	420.88	53.03	141.09	15.51	4.30	460.93
502A	971.00	122.34	141.09	20.79	2.90	464.82
96SRC*	0.83	0.105	16.80	12.53	0.60	344.30
97SRC*	0.83	0.105	16.80	12.53	0.60	344.30
98SRC*	0.83	0.105	16.80	12.53	0.60	344.30

* Carbonator sources from Specialty Minerals, Inc.

IP Eastover Mill was modeled using the constant SO_2 emission rates and stack parameters presented in Table 5.

4.2.1 Minor Contributors

The SO_2 emission rates for IP Eastover Mill presented in Table 5 represent the maximum potential emission rates for sources 371A (No. 1 Lime Kiln), 372A (No. 2 Lime Kiln), 381C (No. 1 Smelt Dissolving Tank), and 382B (No. 2 Smelt Dissolving Tank). These four stacks are relatively small emission sources.

Table 5 includes emissions from the three carbonators operated by Specialty Minerals, Inc. These sources (96SRC, 97SRC and 98SRC) operate within the IP Eastover Mill property and were included in the modeling. The stack heights modeled are shown in Table 5 and are the actual heights for each of these stacks. All of these stack heights are less than the GEP formula height.

Table 2 lists the annual emission rates and hours of operation over the last three years (2013-2015) for the insignificant stationary SO_2 emissions sources at the mill. The years 2013-2015 were used, as hourly runtime data were not available for 2012. As shown in Table 2, these sources have very low SO_2 emission rates and operate very infrequently. Therefore, they should not have any appreciable effect on 1-hour SO_2 ambient concentrations and were not included in the modeling. The only sources at the mill that were included in the modeling are shown in Table 5.

The IP Eastover mill includes two different systems for controlling NCG emissions to comply with regulatory requirements. The kraft pulping process generates total reduced sulfur (TRS) NCG that are odorous and require collection and treatment under the federal New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants (NESHAP) programs. These TRS compounds are treated by thermal oxidation, which converts the TRS compounds into SO_2. At IP Eastover Mill, the majority of TRS gases are collected into the Concentrated NCG System. Other TRS gases are collected into the Dilute NCG System. The treatment devices for these systems are binary; an NCG System can be treated in either one or the other but not simultaneously in both.

The remaining three stacks (381A/501A, 382A/331A, and 502A) have larger SO_2 emission rates and multiple operating modes that must be considered in order to correctly characterize the impact of facility emissions on ambient SO_2 concentrations.

4.2.2 Stack 381A/501A

The stack 381A/501A is a combined stack serving No. 1 Recovery Furnace (381A) and No. 1 Power Boiler (501A). The No. 1 Power Boiler is the primary control device for the mill's

Dilute NCG System and does not have add-on SO_2 controls. The emission rate presented in Table 5 for Stack 381A/501A is less than the maximum short-term emission rate for this stack allowed by the mill's Title V Permit, but is expected to be higher than any future actual emissions. There are two contributions to the SO_2 emission rate for source 501A (the No. 1 Power Boiler): combustion of dilute NCGs (which generates SO_2 from the oxidation of TRS compounds) and combustion of fuel.

In 2016, IP completed a significant project that reduced SO_2 emissions from No. 1 Power Boiler. DHEC construction permit No. 1900-0046-DN was issued to convert No. 1 Power Boiler from coal and residual oil to 100% natural gas only. With the startup of this project in December 2016, coal is no longer used as a fuel at the IP Eastover Mill and natural gas is the sole fuel for No.1 Power Boiler. Consequently, the emissions rate from fuel combustion assumes that the boiler is operating at its maximum heat input rate when firing natural gas.

Including SO_2 emissions from the combustion of Dilute NCGs in the No. 1 Power Boiler is the worst case from an ambient impacts perspective because this stack is much shorter (280 feet) than the stack for the backup dilute NCG treatment device, the No. 2 Power Boiler (460 feet). Neither source has an SO_2 scrubber. Model runs confirmed this assumption and are available on request.

Table 6 IP Eastover Mill Dilute NCG Treatment Location

Dilute NCG Treatment Location	Stack Height (ft)
No. 1 Power Boiler	280
No. 2 Power Boiler	460

4.2.3 Stack 382A/331A

The stack 382A/331A is a combined stack serving No. 2 Recovery Furnace (382A) and the NCG Incinerator (331A). The NCG Incinerator is the primary treatment device for the mill's Concentrated NCG System and is equipped with a packed-column SO_2 scrubber. For source

382A (the No. 2 Recovery Furnace), the modeled emission rate of 420.88 lb/hr is lower than the maximum short-term emission rate of 666 lb/hr allowed by the facility's Title V Permit but is expected to be higher than any future actual emissions. Zero SO_2 emission contribution is included in Table 5 from source 331A (the No. 2 NCG Incinerator) because it is more conservative in terms of offsite emission impacts to assume that the incinerator is not operating and the concentrated NCGs normally processed in this unit is being combusted in the backup incineration point (Source 502A, the No. 2 Power Boiler), because the backup incineration point is not equipped with add-on SO_2 controls. Model runs confirmed this assumption and are included in the electronic documentation.

To demonstrate it is more conservative to assume the concentrated NCGs are burned in the No. 2 Power Boiler (502A) as opposed to the NCG Incinerator (331A), modeling was performed for these two stacks using a unit emission rate of 1 g/s. This analysis method allowed a comparison of the normalized concentrations for each source in the form of the 1-hour SO_2 NAAQS (i.e. the 3-year averaged, 4th high, maximum daily, 1-hour concentration). The modeling was performed using the methodologies presented in this report and stack parameters listed in Table 5. The resulting normalized design concentrations are 0.57 µg/m3 per g/s for 502A and 0.44 µg/m3 per g/s for 382A/331A stacks. This indicates that the 502A stack has a 30% higher unit rate modeled concentration compared to the 382A/331A stack for an identical unit emission rate (1 g/s). These results affirm that assuming the concentrated NCGs are burned in the No. 2 Power Boiler (502A) as opposed to the NCG Incinerator (382A/331A) is the worst-case scenario for the purposes of the DRR modeling.

Table 7 IP Eastover Mill Concentrated NCG Treatment Location

Concentrated NCG Treatment Location	SO_2 Control Device	Stack Height (ft)
NCG Incinerator	Packed Column Caustic Scrubber	460
No. 2 Power Boiler	No add-on control	460

4.2.4 Stack 502A

The stack 502A serves No. 2 Power Boiler. The No. 2 Power Boiler is the backup treatment device for the mill's Concentrated NCG System and the Dilute NCG System and as noted above does not have add-on SO_2 controls. There are three contributions to the SO_2 emission rate for source 502A: fuel burning, concentrated NCG combustion, and rectified methanol combustion. For fuel burning, the emissions rate assumes that the unit is operating at its maximum heat input rate (500 MMBtu/hr) burning the worst-case fuel from an SO_2 emissions rate generation perspective (tire-derived fuel) at the short term emission rate allowed by the Title V Permit. The contribution from concentrated NCG combustion utilizes the maximum short-term emissions rate for this unit included in the facility's Title V permit, and the contribution for methanol combustion assumes that the unit is burning methanol at a maximum rate of 4 GPM.

4.2.5 Comparison of Modeled and Actual Emission Rates

Table 8 compares the modeled and 2014-2016 actual SO_2 emission rates from the No. 1 Recovery Furnace (381A) and No. 2 Recovery Furnace (382A). The data presented demonstrate that the modeled emission rates from these two sources were considerably and consistently higher than the actual emission rates during 2014-2016 and therefore conservative.

As shown in Table 5, the modeled emission rate from 381A/501A is 606.91 lb/hr and consists of emissions from the operation of the No. 1 Recovery Furnace (381A) and combustion of natural gas and dilute NCGs in the No. 1 Power Boiler (501A), as described in Section 4.2.2. The SO_2 emission rate associated with dilute NCG combustion in the IP Eastover Mill's Title V permit is 894 TPY (204.11 lb/hr), while the SO_2 emissions due to natural gas combustion are essentially negligible. Accordingly, the fraction of the 381A/501A modeled emission rate attributed to the No. 1 Recovery Furnace (381A) is 402.8 lb/hr. The maximum actual hourly emission rate (computed from recorded monthly values) over 2014-2016 was 21.89 lb/hr for 381A, which is significantly lower than the modeled emission rate of 402.8 lb/hr.

As described in Section 4.2.3, the modeled emission rate of 420.88 lb/hr from 382A/331A is due entirely to the operation of the No. 2 Recovery Furnace (382A) based on the conservative assumption that concentrated NCGs are combusted in the No. 2 Power Boiler (502A) and not

the NCG Incinerator (331A). The maximum actual hourly emission rate (computed from recorded monthly values) over 2014-2016 was 23.29 lb/hr for 382A, which is significantly lower than the modeled emission rate of 420.88 lb/hr.

Table 8 IP Eastover Mill 2014-2016 Actual Emission SO_2 Rates for 381A and 382A

Month-Year	Monthly Actual Emissions (tons/month)		Monthly Actual Operating Hours		Computed Hourly Emission Rate (lb/hr)	
	381A	382A	381A	382A	381A	382A
January 2014	3.05	8.55	744	734	8.20	23.29
February 2014	0.13	3.95	672	672	0.38	11.76
March 2014	1.28	4.30	743	743	3.45	11.55
April 2014	1.11	3.83	720	720	3.08	10.65
May 2014	0.13	5.39	744	735	0.36	14.49
June 2014	0.34	3.98	719	720	0.94	11.05
July 2014	0.14	4.23	744	744	0.37	11.36
August 2014	0.48	4.07	728	744	1.29	10.93
September 2014	0.13	4.12	720	720	0.36	11.44
October 2014	0.17	4.78	744	561	0.45	12.84
November 2014	0.13	4.44	720	720	0.36	12.33
December 2014	2.15	4.74	744	744	5.79	12.74
January 2015	0.90	4.93	744	744	2.42	13.25
February 2015	0.12	5.77	672	663	0.37	17.18
March 2015	0.14	4.98	743	743	0.37	13.37
April 2015	1.13	4.44	720	719	3.14	12.32
May 2015	0.14	4.88	744	744	0.37	13.11
June 2015	0.13	5.88	720	712	0.37	16.33
July 2015	1.58	4.46	744	744	4.26	11.98
August 2015	1.50	4.56	731	744	4.03	12.27
September 2015	0.13	4.59	720	720	0.36	12.74
October 2015	1.49	7.35	744	603	4.00	19.76
November 2015	0.13	5.93	720	720	0.37	16.47
December 2015	1.09	5.05	744	744	2.92	13.57
January 2016	0.85	5.96	743	744	2.28	16.03
February 2016	0.13	7.00	696	696	0.37	20.11
March 2016	0.14	4.93	743	743	0.37	13.26
April 2016	1.36	4.28	715	720	3.77	11.90
May 2016	0.13	4.82	744	744	0.36	12.95
June 2016	0.70	5.76	720	713	1.93	16.01
July 2016	0.13	4.83	744	744	0.36	12.98
August 2016	1.88	4.81	744	744	5.06	12.92
September 2016	0.57	4.57	720	720	1.60	12.71
October 2016	0.28	7.34	742	711	0.76	19.72
November 2016	3.30	7.52	720	720	9.15	20.88
December 2016	8.14	7.99	744	744	21.89	21.47

4.3 Urban vs. Rural Determination

The DHEC BAQ land use GIS tool was utilized to determine if a 3 km area surrounding each facility should be classified as rural or urban for the purposes of this modeling analysis. The DHEC BAQ land use GIS tool makes use of 2001 National Land Cover Database (NLCD) data and was applied separately for IP Eastover Mill and SCE&G Wateree Station.

Table 9 shows the percent land use for different land use categories within 3 km of each facility. The area surrounding both facilities is predominately rural and the non-developed land use classes total about 71% for both IP Eastover Mill and SCE&G Wateree Station. Therefore, the rural option was selected in AERMOD.

Table 9 Land use percentage within 3 km of IP Eastover Mill and SCE&G Wateree Station

Land use Class	IP Eastover Mill	SCE&G Wateree Station
Open water	17.55%	17.36%
Developed, Open Space	4.80%	4.50%
Developed, Low Intensity	8.88%	9.17%
Developed, Medium Intensity	10.38%	10.25%
Developed, High Intensity	4.99%	4.94%
Barren Land	1.93%	0.02%
Deciduous Forest	5.60%	1.07%
Evergreen Forest	5.85%	10.40%
Mixed Forest	0.07%	0.08%
Scrub/Shrub	0.16%	0.13%
Grassland/Herbaceous	11.86%	6.18%
Pasture/Hay	1.90%	1.79%
Cultivated Crops	4.12%	3.08%
Woody Wetlands	16.15%	24.74%
Emergent Herbaceous	5.76%	6.30%

5 Meteorological Data

5.1 Overview

The modeling was performed utilizing the three most recent years of meteorological data, 2014 through 2016. DHEC BAQ provided the AERMOD-ready meteorological input files for this analysis based on the most representative station. AERMOD was run using the AERMET dataset run with current default options.

IP Eastover Mill and SCE&G Wateree Station are both located approximately 40 km east-southeast of Columbia, South Carolina in Richland County, right on the Richland and Sumter County line. DHEC BAQ guidance recommends the following meteorological data sets for sources in these counties:

- Richland County – surface meteorological data from Columbia Metropolitan Airport along with concurrent upper air observations from Greensboro, North Carolina's Piedmont Triad International Airport.
- Sumter County – surface meteorological data from Florence Regional Airport along with concurrent upper air observations from Greensboro, North Carolina's Piedmont Triad International Airport.

In order to determine which meteorological data set is most suitable for modeling, the following factors relative to IP Eastover Mill and SCE&G Wateree Station were examined:

- proximity,
- representativeness of winds,
- representativeness of terrain, and
- representativeness of land use.

5.2 Proximity

Figure 15 shows the location of IP Eastover Mill and SCE&G Wateree Station relative to the Columbia Metropolitan Airport and the Florence Regional Airport. Circles of radius 20km and 50km are included to help establish scale. The Columbia Metropolitan Airport is located approximately 45 km to the west-northwest of the facilities. The Florence Regional Airport is located approximately 90 km to the east-northeast of the facilities. Columbia Metropolitan Airport is clearly much closer to the facilities and is preferred on that basis.

Figure 15 Location of IP Eastover Mill and SCE&G Wateree Station relative to nearby airports

5.3 Representativeness of Winds

While the analysis of the representativeness of winds presented here was performed for 2012-2014, it is assumed that the same general conclusions from 2012-2014 also apply to the modeled period 2014-2016.

Figure 16 shows 3-year (2012-2014) wind roses for the Columbia Metropolitan and Florence Regional Airports. These wind roses incorporate use of the available 1-minute Automated Surface Observing System (ASOS) data for each airport. The wind rose patterns at these two sites are somewhat similar. Columbia Metropolitan has more of a westerly component to the southerly winds, whereas Florence Regional's southerly winds are more aligned with southwesterly winds. The wind speeds are also similar, with Columbia Metropolitan registering a 2.83 m/s annual average wind speed over the three years (2012-2014), and Florence Regional averaging 3.16 m/s over the same time period. Since the facilities are much closer to the Columbia Metropolitan Airport, and there are no significant terrain features nearby, the winds at Columbia Metropolitan Airport are more representative for the two facilities.

During the three year period of 2012-2014 proposed for modeling, both airports have data capture percentages of about 96% on an annual basis. Both airports also report a very low frequency of calm winds with Columbia Metropolitan at 1.39% and Florence Regional at 1.59% over the three year period. The low frequency of calm winds is largely attributable to the use of the 1-minute ASOS data.

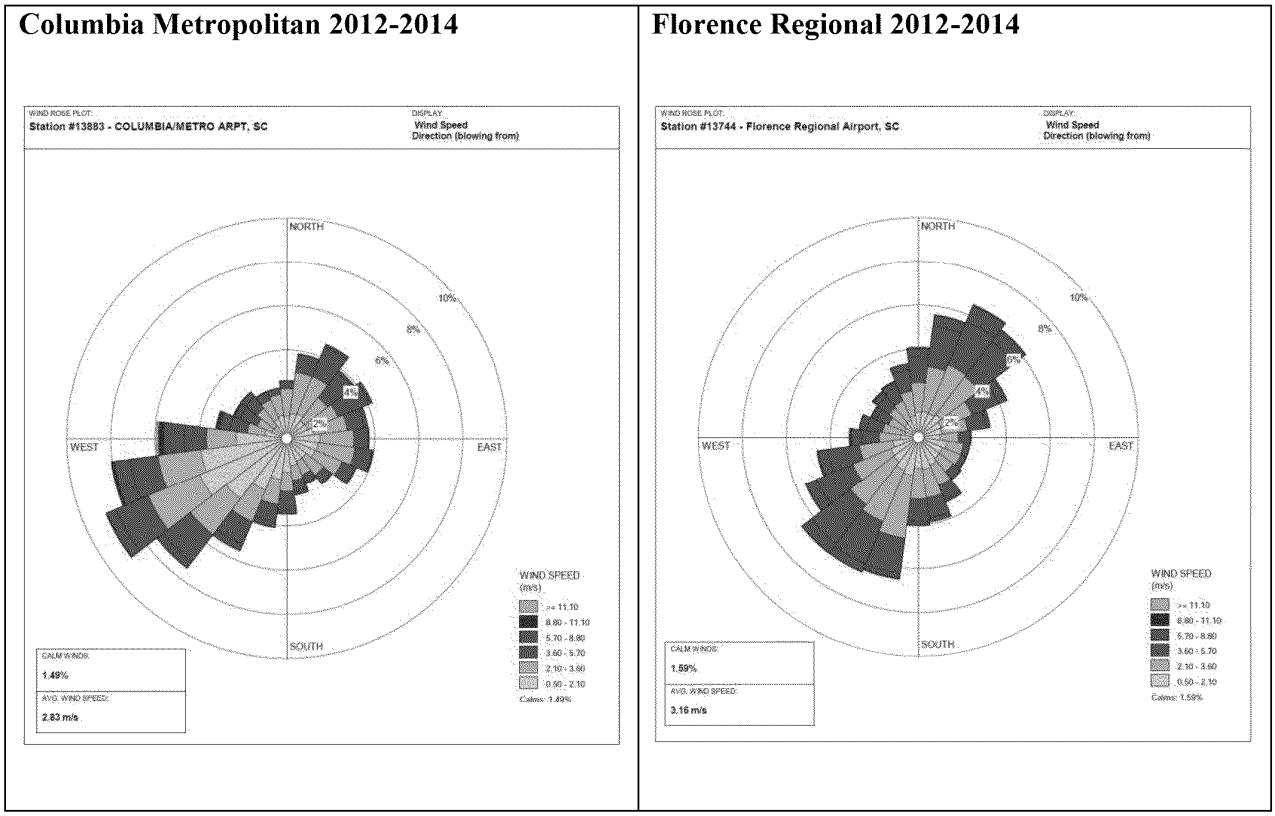

Figure 16 Wind roses for nearby airports

5.4 Representativeness of Terrain

IP Eastover Mill and SCE&G Wateree Station are both located in a broad river valley with largely flat terrain between and surrounding the two facilities. The terrain in the area surrounding Columbia Metropolitan Airport is similarly flat. The elevations at Columbia Metropolitan Airport, IP Eastover Mill, and SCE&G Wateree Station are comparable, and there are no significant elevation changes in the terrain between them. Therefore, Columbia Metropolitan Airport is representative of the terrain surrounding IP Eastover Mill and SCE&G Wateree Station.

5.5 Representativeness of Land Use

AERMET requires specification of site characteristics including surface roughness, albedo, and Bowen ratio. These parameters and their representativeness between the application site and measurement site are an important consideration when selecting a meteorological data set to use for modeling as these parameters are used as inputs to AERMET, and eventually AERMOD, to help characterize the dispersion in the atmospheric boundary layer.

AERSUFACE was used to help compare these land use parameters for the areas surrounding IP Eastover Mill, SCE&G Wateree Station, Columbia Metropolitan, and Florence Regional Airports. AERSURFACE is a tool developed by EPA (EPA, 2008) that can be used to determine the site land use characteristics based on digitized land cover data in accordance with the recommendations in the AERMOD Implementation Guide (AIG) (EPA, 2009). AERSURFACE incorporates look-up tables of representative surface characteristic values by land cover category and seasonal category.

The revised AIG provides the following recommendations for determining the site characteristics:

1. The determination of the surface roughness length should be based on an inverse distance weighted geometric mean for a default upwind distance of 1 km relative to the measurement site. Surface roughness length may be varied by sector to account for

variations in land cover near the measurement site; however, the sector widths should be no smaller than 30 degrees.

2. The determination of the Bowen ratio should be based on a simple unweighted geometric mean (i.e., no direction or distance dependency) for a representative domain, with a default domain defined by a 10 km by 10 km region centered on the measurement site.

3. The determination of the albedo should be based on a simple unweighted arithmetic mean (i.e., no direction or distance dependency) for the same representative domain as defined for Bowen ratio, with a default domain defined by a 10 km by 10 km region centered on the measurement site.

The current version of AERSURFACE (Version 13016) supports the use of land cover data from the USGS National Land Cover Data 1992 archives (NLCD92). The NLCD92 archive provides data at a spatial resolution of 30m based upon a 21-category classification scheme applied over the continental U.S. Figure 17 depicts the NLCD92 data within 1 km of: Columbia Metropolitan Airport, Florence Regional Airport, IP Eastover Mill, and SCE&G Wateree Station. Figure 17 shows that there are some differences in the land use at the four sites. As such, AERSURFACE was run to quantify what these differences mean in terms of actual inputs to AERMET and AERMOD.

AERSURFACE was applied for a single 1 km sector around each site as depicted in Figure 17 using average moisture conditions and default seasonal classifications. The results of the three AERSURFACE runs are presented in Table 10. Table 10 shows the annual average albedo and Bowen ratio values are generally similar except that the Bowen ratio is a bit lower for IP Eastover Mill and SCE&G Wateree Station in comparison to the two airports. The surface roughness, however, is different. This is a common result because there are typically fewer roughness elements surrounding the anemometer at an airport than at an industrial site. In addition, the surface roughness may be a bit underestimated for the two industrial sites as the 1992 NLCD data does not accurately portray the land use around the facilities themselves. We believe that the surface roughness around the airports may also be understated because the

grassy areas surrounding each airport (within 1 km) are characterized as "Urban/Recreational Grasses" consistent with mowed and manicured lawns. It is more likely that the grassy areas surrounding the airport are closer to natural grasslands such as those used for grazing. This would support a higher surface roughness of 0.01 to 0.1 meters consistent with the AERSURFACE category for "Grasslands/Herbaceous" as opposed to 0.01 to 0.02 meters for "Urban/Recreational Grasses".

Based on the factors discussed above, notably the much closer proximity and slightly higher surface roughness, the modeling utilized data from Columbia Metropolitan Airport along with concurrent upper air observations from Greensboro, NC for the three year period, 2012-2014.

Table 10 Land use comparison for IP Eastover Mill, SCE&G Wateree Station, and two nearby airports

	Annual Average Land Use		
Site	Albedo	Bowen	z_o
Columbia Metropolitan	0.16	0.69	0.049
Florence Regional	0.16	0.58	0.042
Eastover	0.15	0.36	0.308
Wateree	0.15	0.31	0.148

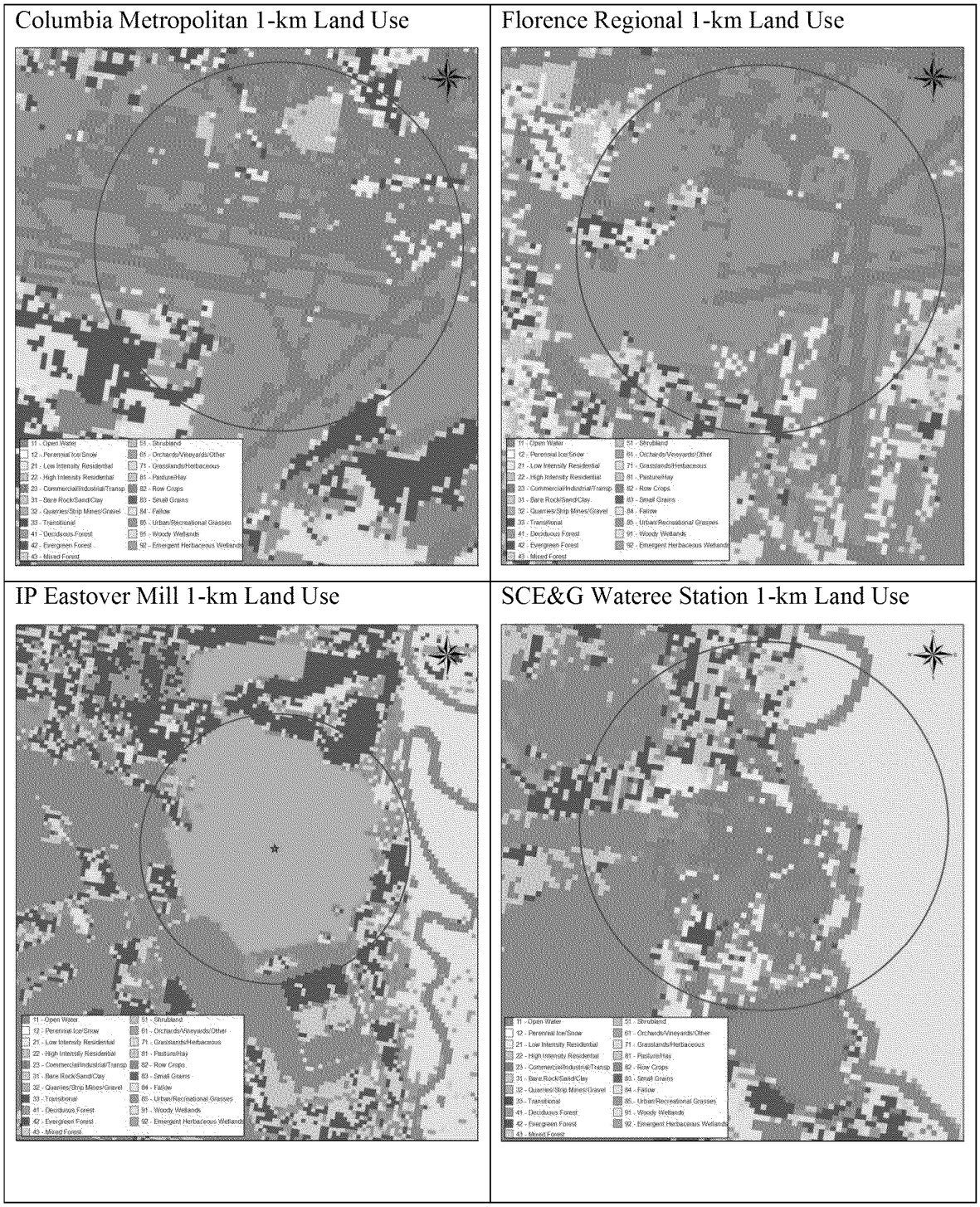

Figure 17 Land use surrounding IP Eastover Mill, SCE&G Wateree Station, and the two nearby airports

6 Background Monitoring Data

6.1 Overview

Ambient air quality data are used to represent the contribution of non-modeled sources to the total ambient air pollutant concentrations. In order to determine compliance with the 1-hour SO_2 NAAQS, the modeled design concentration must be added to a measured ambient background concentration to estimate the total design concentration. This total design concentration is then compared to the NAAQS to determine compliance.

While the ambient air quality data analysis presented here was performed for 2012-2014, it is assumed that the same general conclusions also apply to the modeled period 2014-2016.

For this analysis, we considered data from two nearby monitors: Congaree Bluff (Site ID: 450790021; Address: 1850 South Cedar Creek Road) and Parklane (Site ID: 450790007; Address: 8311 Parklane Road). Figure 18 shows the location of IP Eastover Mill, SCE&G Wateree Station, and the Congaree Bluff and Parklane monitors.

Design concentrations for the period of 2012 through 2014 are provided for each of the monitors in Table 11. The design concentrations are based on the 99th percentile of the peak daily 1-hour SO_2 concentrations averaged over three years.

In order to determine which monitor is most appropriate to use for the ambient background concentration in this analysis, we considered several factors including proximity, data quality, and influence from nearby sources.

Table 11 1-hour SO_2 Design Concentrations for the Congaree Bluff and Parklane Monitors

Monitor	Year	Annual Data Capture		99th Percentile Concentration	Design Concentration (3-year average)	
		hours	%		ppb	µg/m³
Congaree Bluff	2012	8548	98%	11 ppb	19	51
	2013	8650	99%	22 ppb		
	2014	1280	15%	25 ppb		
Parklane	2012	8315	95%	10 ppb	12	31
	2013	8667	99%	10 ppb		
	2014	8676	99%	15 ppb		

6.2 Proximity

As shown in Figure 18, the Congaree Bluff monitor is located approximately 15 km west-southwest of IP Eastover Mill and SCE&G Wateree Station. The Parklane monitor is located approximately 40 km west-northwest of these two facilities. The Congaree Bluff monitor is clearly affected by emissions from IP Eastover Mill and SCE&G Wateree Station when prevailing winds are in the direction from these facilities towards the monitor due to its close proximity to these two facilities. Additional discussion of nearby source influence on the Congaree Bluff monitor is provided below.

6.3 Data Quality

In addition to the design value concentrations, Table 11 summarizes the number of annual 1-hour observations for each of the three years. All three years for the period 2012-2014 for the Parklane monitor show excellent data capture exceeding 95%. The Congaree Bluff monitor shows excellent data capture for 2012 and 2013, exceeding 98%, but data capture for 2014 is poor at about 15%. The Congaree Bluff monitor is missing data from around March 2014 through early December 2014.

Figure 18 Location of nearby monitors in relation to IP Eastover Mill and SCE&G Wateree Station

6.4 Nearby Source Influence

As stated, the Congaree Bluff monitor is strongly influenced by SO_2 emissions from both IP Eastover Mill and SCE&G Wateree Station. The two facilities are very close to the Congaree Bluff monitor and the observations clearly show higher concentrations when the winds blow from a direction (from the east-northeast) that would have favorable transport from IP Eastover Mill and SCE&G Wateree Station to the Congaree Bluff monitor. This is clearly evident in Figure 19, which shows a pollution rose of the Congaree Bluff monitor for the 2012-2014 period of time. The pollution wind rose incorporated wind data from Columbia Metropolitan Airport.

A pollution rose for the Parklane monitor (also shown in Figure 19) was produced for the 2012-2014 period using wind data from Columbia Metropolitan Airport. The observed concentrations

at the Parklane monitor show very little influence from IP Eastover Mill and SCE&G Wateree Station under favorable transport winds (from the southeast). The Parklane monitor does show a spike in monitored concentrations when winds are blowing from the southwest, likely due to influence from SCE&G McMeekin Station, which is located about 24 km to the west-southwest of the monitor and is currently coal-fired.

Overall, we believe the Parklane monitor is the best choice to use for the ambient background concentrations for the 1-hour SO_2 NAAQS analysis. Use of the Congaree Bluff monitor would result in double-counting impacts from IP Eastover Mill and SCE&G Wateree Station, since both sources are included in the modeled component of the total estimated design concentration (modeled + monitored background). In addition, data capture from the Congaree Bluff monitor is inadequate for 2014, while the Parklane monitor has strong data capture for all three years. Use of the Parklane monitor for 2012-2014 provides a conservative measure of ambient background SO_2 for this model application as these data are still influenced by SO_2 emissions from the SCE&G McMeekin Station. These emissions were reduced dramatically in March 2016 when the SCE&G McMeekin Station ceased to operate on coal and fully converted to natural gas.

Consistent with EPA guidance in their March 1, 2011 clarification memo, seasonal and hour-of-day varying background concentrations for 2014-2016 from the Parklane monitor were used in the modeling. These data were provided by DHEC BAQ and are listed in Table 12.

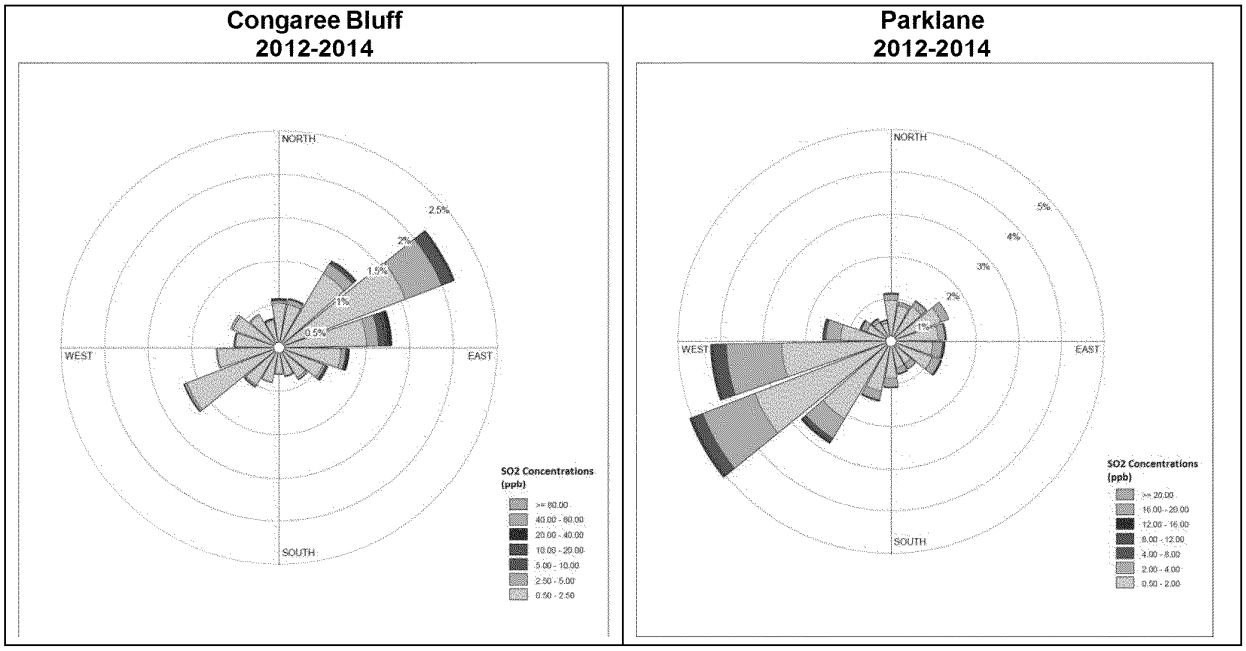

Figure 19 Pollution roses for the Congaree Bluff and Parklane monitors (2012-2014)

Table 12 Time-varying 1-hour SO_2 Concentrations by Season and Hour-of-day for the Parklane Monitor for 2014-2016

Hour of Day	Season 1	Season 2	Season 3	Season 4
Start Time	Dec-Jan-Feb (µg/m^3)	Mar-Apr-May (µg/m^3)	Jun-Jul-Aug (µg/m^3)	Sep-Oct-Nov (µg/m^3)
1	12.4	6.9	2.7	2.1
2	6.2	5.0	4.0	2.4
3	6.0	3.6	3.9	2.4
4	7.9	3.3	2.9	2.4
5	7.7	3.2	3.7	2.1
6	5.1	3.1	2.2	2.4
7	5.5	4.2	2.4	2.7
8	7.5	5.7	5.9	4.0
9	8.2	5.9	10.4	5.1
10	13.3	4.4	8.6	4.5
11	14.4	7.0	6.8	4.6
12	9.6	4.3	5.8	5.1
13	8.6	3.3	4.4	3.2
14	7.4	3.0	4.3	2.4
15	8.7	4.1	3.7	2.1
16	11.2	5.8	4.8	3.0
17	10.4	6.5	5.4	3.0
18	8.6	8.4	8.6	3.2
19	9.0	8.4	6.2	3.5
20	9.9	9.8	8.1	2.4
21	9.3	7.1	2.3	2.4
22	8.0	5.1	3.1	2.3
23	13.4	3.1	3.0	2.4
24	15.9	5.0	2.2	2.2

7 Modeling Results with Actual Emissions for SCE&G Wateree Station and Constant Emissions for IP Eastover Mill

For the modeling scenario with 2014-2016 actual hourly emissions for SCE&G Wateree Station and constant emissions for IP Eastover Mill, the 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations are in compliance at all modeled receptors with the NAAQS value of 75 parts per billion (ppb) (approximately 196.0 µg/m^3).

The controlling predicted 3-year averaged, 4th high, maximum daily, 1-hour SO_2 impact is shown below in Table 13. The maximum total design concentration value of 170.3 µg/m^3 occurs just south of the IP Eastover Mill plant boundary in an area with 100-meter spaced receptors. Figure 20 shows the overall pattern and locations of the design concentrations (modeled plus ambient background).

Table 13 Controlling 3-year Averaged 4th-High Maximum Daily 1-hour SO_2 Predicted Concentration for SCE&G Actual Hourly and IP Constant Emissions

Pollutant and Averaging Period	IP Eastover Mill Contribution (µg/m^3)	SCE&G Wateree Station Contribution (µg/m^3)	Modeled Background Contribution (µg/m^3)	Monitored Background Contribution (µg/m^3)	Total Concentration (µg/m^3)	NAAQS (µg/m^3)
SO_2 1-hour	67.68	97.47	0.27	4.88	170.30	196.0

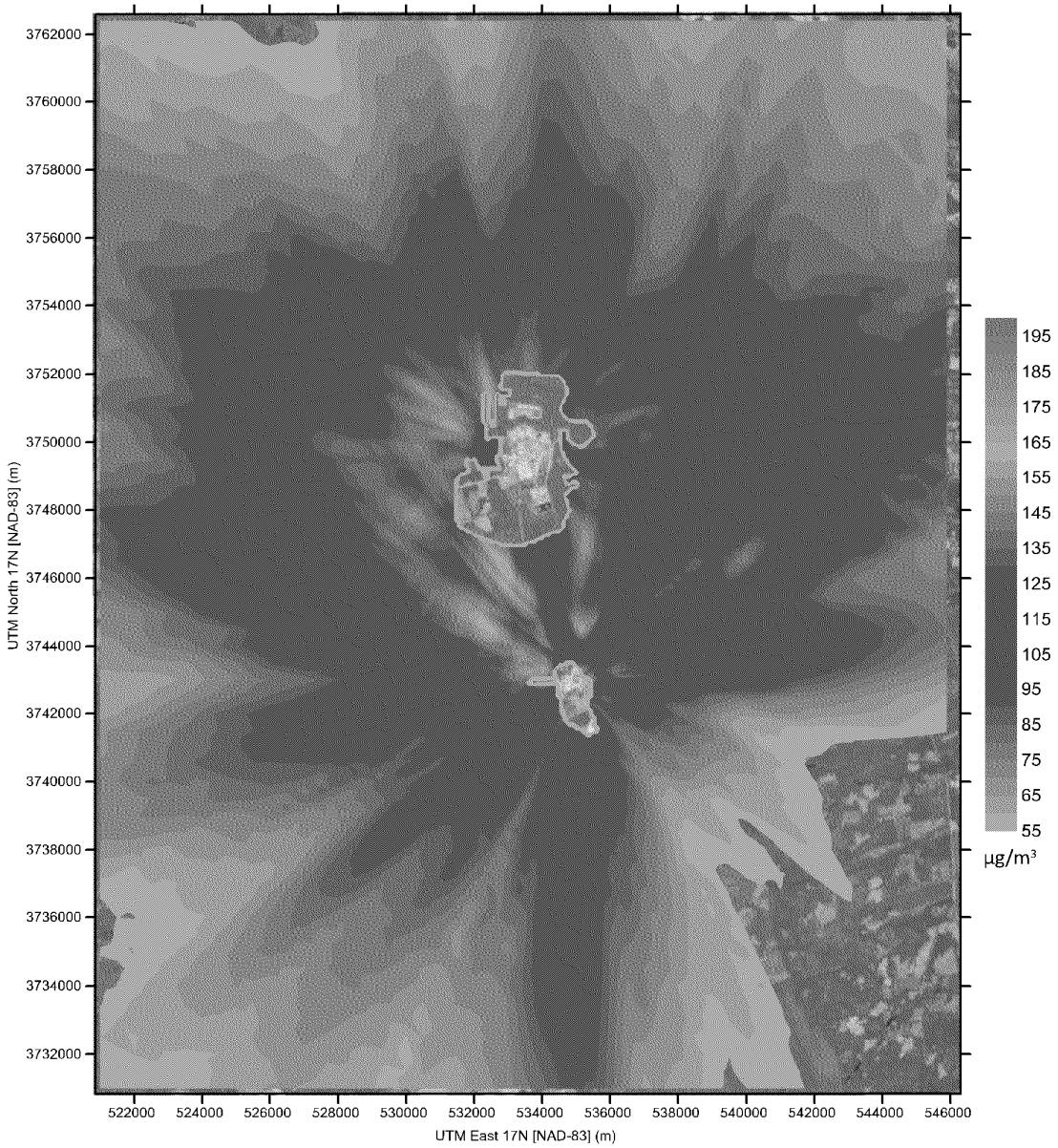

Figure 20 Isopleth map of 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations with actual hourly SCE&G Wateree Station and constant IP Eastover Mill emission rates

8 Modeling Results with Constant Emissions for Both SCE&G Wateree Station and IP Eastover Mill

For the modeling scenario with constant emissions for both SCE&G Wateree Station and IP Eastover Mill, the 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations are in compliance at all modeled receptors with the NAAQS value of 75 parts per billion (ppb) (approximately 196.0 μg/m^3). Future actual emissions are not expected to exceed the modeled emission rates in this scenario for either facility.

The controlling predicted 3-year averaged, 4th high, maximum daily, 1-hour SO_2 impact is shown below in Table 14. The maximum total design concentration value of 194.86 μg/m^3 occurs along the northwestern boundary of the IP Eastover Mill plant boundary in an area with 100-meter spaced receptors. Figure 21 shows the overall pattern and locations of the design concentrations (modeled plus ambient background).

Table 14 Controlling 3-year Averaged 4th-High Maximum Daily 1-hour SO_2 Predicted Concentration for SCE&G Actual Hourly and IP Constant Emissions

Pollutant and Averaging Period	IP Eastover Mill Contribution (μg/m^3)	SCE&G Wateree Station Contribution (μg/m^3)	Modeled Background Contribution (μg/m^3)	Monitored Background Contribution (μg/m^3)	Total Concentration (μg/m^3)	NAAQS (μg/m^3)
SO_2 1-hour	140.03	48.39	0.51	5.93	194.86	196.0

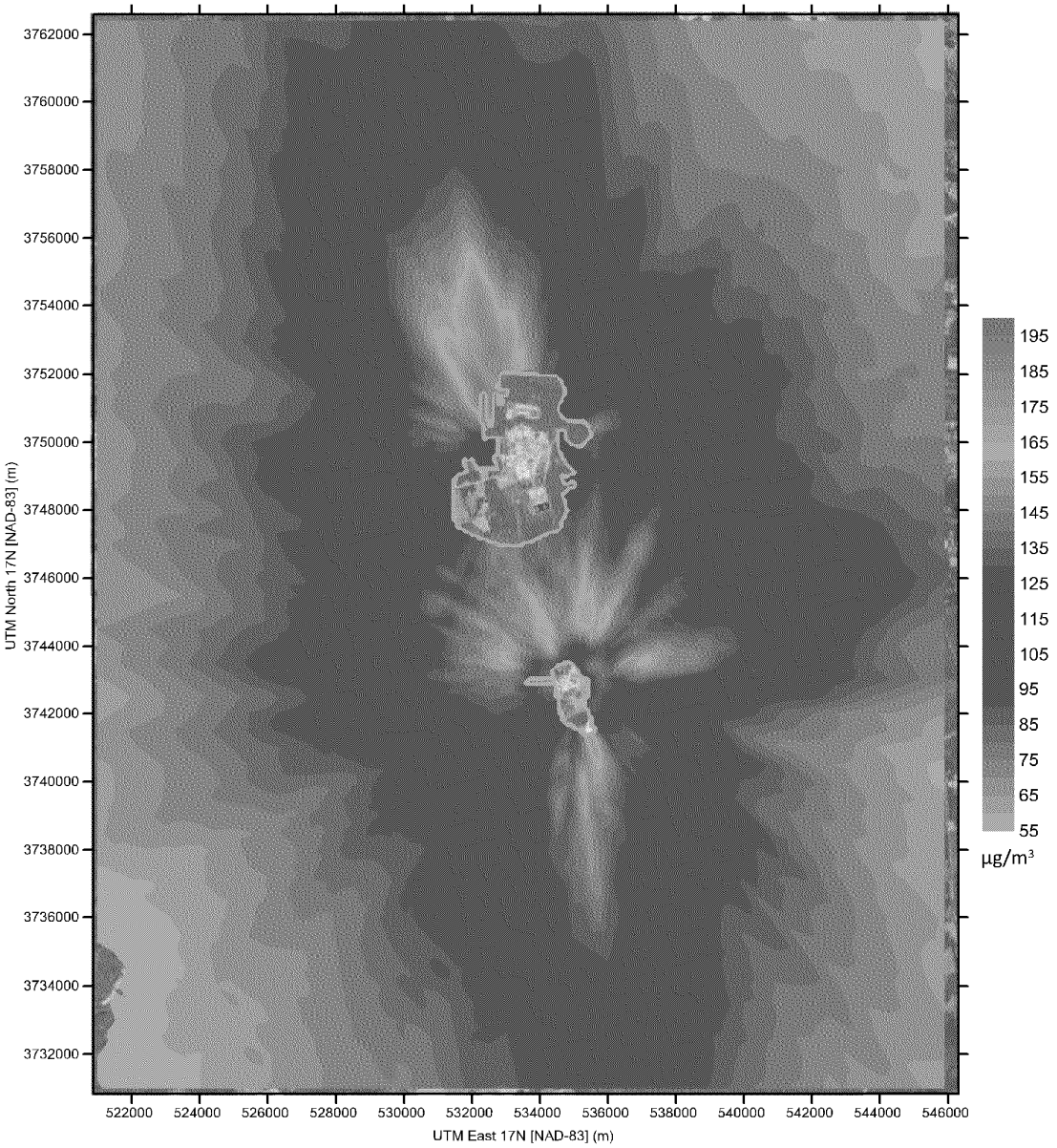

Figure 21 Isopleth map of 3-year averaged, 4th high, maximum daily, 1-hour SO_2 predicted total concentrations with constant emissions for both SCE&G Wateree Station and IP Eastover Mill

9 Conclusion

The air quality modeling analysis presented in this report demonstrates that the region surrounding SCE&G Wateree Station and IP Eastover Mill in Eastover, South Carolina is in attainment with respect to the 1-hour NAAQS for SO_2. This analysis was additionally performed using modeled emissions that are expected to be higher than any future actual emissions. Therefore, the area should be classified as "attainment" with respect to the 1-hour NAAQS for SO_2.

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        533428.33     3749532.30
        533420.33     3749530.30
        533423.33     3749522.30
        533430.33     3749524.30
'O2HD-2'  1          0.00
   4        23.77
        533457.33     3749470.30
        533459.33     3749461.30
        533451.33     3749458.30
        533448.33     3749467.30
'CL-1'  1          0.00
   6        23.16
        533445.33     3749655.30
        533448.33     3749644.30
        533436.33     3749640.30
        533434.33     3749646.30
        533431.33     3749645.30
```

```
        533429.33     3749650.30
'CL-2'  1          0.00
   4        25.91
        533434.33     3749646.30
        533436.33     3749640.30
        533432.33     3749639.30
        533431.33     3749645.30
'PF-1'  1          0.00
   4        14.33
        533397.33     3749852.30
        533398.33     3749848.30
        533395.33     3749847.30
        533394.33     3749851.30
'PF-2'  1          0.00
   4        20.73
        533394.33     3749851.30
        533396.33     3749843.30
        533381.33     3749839.30
        533379.33     3749847.30
'FP2-3'  1          0.00
   4        15.70
        533356.33     3749214.30
        533375.33     3749151.30
        533358.33     3749145.30
        533339.33     3749208.30
'BP1-6'  1          0.00
   4        45.11
        533336.33     3749450.30
        533339.33     3749441.30
        533310.33     3749432.30
        533307.33     3749441.30
'FD1-1-2'  1          0.00
   6        27.13
        533391.33     3749961.30
        533395.33     3749947.30
        533380.33     3749943.30
        533377.33     3749953.30
        533374.33     3749952.30
        533373.33     3749956.30
'FO-1'  1          0.00
   4        12.19
        533344.33     3749972.30
        533351.33     3749952.30
        533318.33     3749942.30
        533311.33     3749962.30
'LIME-2'  1          0.00
   4        19.81
        533321.33     3749897.30
        533323.33     3749891.30
        533316.33     3749889.30
        533315.33     3749895.30
'PCC-1'  1          0.00
   6        15.24
        533335.33     3749923.30
        533342.33     3749898.30
        533324.33     3749892.30
```

```
        533318.33     3749912.30
        533331.33     3749916.30
        533329.33     3749922.30
'EVAP-1'  1          0.00
   4        18.29
        533205.33     3749821.30
        533217.33     3749778.30
        533209.33     3749775.30
        533196.33     3749819.30
'EVAP-2'  1          0.00
   4        21.79
        533267.33     3749851.30
        533284.33     3749796.30
        533275.33     3749793.30
        533258.33     3749849.30
'TANKS'  1          0.00
   4        15.24
        533261.33     3749839.30
        533275.33     3749795.30
        533209.33     3749775.30
        533196.33     3749819.30
'EVTK-1'  1          0.00
   4         7.32
        533194.33     3749802.30
        533206.33     3749763.30
        533194.33     3749759.30
        533182.33     3749798.30
'PCC-2'  1          0.00
   4        12.19
        533329.33     3749922.30
        533331.28     3749916.28
        533325.27     3749914.33
        533323.31     3749920.34
'PCC-3'  1          0.00
   4         6.10
        533348.33     3749899.30
        533352.33     3749888.30
        533346.33     3749886.30
        533342.33     3749898.30
'CHEST1A'  1          0.00
   4         6.71
        533249.33     3749376.30
        533281.33     3749385.30
        533285.33     3749374.30
        533253.33     3749364.30
'CHEST1B'  1          0.00
   4        20.88
        533249.33     3749376.30
        533272.33     3749383.30
        533276.33     3749371.30
        533253.33     3749364.30
'CHEST2A'  1          0.00
   4        12.50
        533317.33     3749366.30
        533355.33     3749377.30
        533352.33     3749389.30
```

```
        533314.33     3749377.30
'CHEST2B'  1          0.00
   4        20.88
        533317.33     3749366.30
        533329.33     3749369.30
        533325.33     3749381.30
        533314.33     3749377.30
'PCC SILO'  1         0.00
   32        21.34
        533323.33     3749887.10
        533323.23     3749887.40
        533323.03     3749887.70
        533322.83     3749888.00
        533322.53     3749888.20
        533322.23     3749888.40
        533321.93     3749888.50
        533321.53     3749888.50
        533321.13     3749888.50
        533320.83     3749888.40
        533320.53     3749888.20
        533320.23     3749888.00
        533320.03     3749887.70
        533319.83     3749887.40
        533319.73     3749887.10
        533319.73     3749886.70
        533319.73     3749886.30
        533319.83     3749886.00
        533320.03     3749885.70
        533320.23     3749885.40
        533320.53     3749885.20
        533320.83     3749885.00
        533321.13     3749884.90
        533321.53     3749884.90
        533321.93     3749884.90
        533322.23     3749885.00
        533322.53     3749885.20
        533322.83     3749885.40
        533323.03     3749885.70
        533323.23     3749886.00
        533323.33     3749886.30
        533323.33     3749886.70
'2_CLO2'  1          0.00
   4        25.30
        533405.77     3749649.80
        533410.27     3749633.55
        533425.77     3749637.80
        533420.96     3749653.80
8
'382A331A'        0.00     141.10     533259.36     3749721.59  'No.2 Recovery Furnance/NCG
Incinerator'
'371A'            0.00     53.90      533384.86     3749996.59  'No. 1 Lime Kiln'
'372A'            0.00     53.90      533382.36     3749968.59  'No.2 Lime Kiln'
'381A501A'        0.00     86.10      533207.36     3749704.59  'No.1 Recovery Furnace/Power Boiler'
'381C'            0.00     76.00      533287.64     3749634.09  'No.1 Smelt Dissolving Tank'
'382B'            0.00     76.00      533297.16     3749662.63  'No.2 Smelt Dissolving Tank'
'502A'            0.00     141.10     533155.36     3749688.59  'No.2 Power Boiler'
```

'WAT12'	0.00	121.92	535027.74	3742890.14

IP EASTOVER SC - NAAQS ANALYSIS

BPIP (Dated: 04274)
DATE : 9/ 3/2015
TIME : 16:53:26
IP EASTOVER SC - NAAQS ANALYSIS

==========
BPIP PROCESSING INFORMATION:
==========

The P flag has been set for preparing downwash related data for a model run utilizing the PRIME algorithm.

Inputs entered in METERS will be converted to meters using a conversion factor of 1.0000. Output will be in meters.

The UTMP variable is set to UTMY. The input is assumed to be in UTM coordinates. BPIP will move the UTM origin to the first pair of UTM coordinates read. The UTM coordinates of the new origin will be subtracted from all the other UTM coordinates entered to form this new local coordinate system.

Plant north is set to 0.00 degrees with respect to True North.

IP EASTOVER SC - NAAQS ANALYSIS

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	Preliminary* GEP** EQN1	GEP Stack Height Value
382A331A	141.10	0.00	148.98	148.98
371A	53.90	0.00	67.82	67.82
372A	53.90	0.00	71.15	71.15
381A501A	86.10	0.00	148.98	148.98
381C	76.00	0.00	153.85	153.85
382B	76.00	0.00	153.85	153.85
502A	141.10	0.00	148.98	148.98
WAT12	121.92	N/A	0.00	65.00

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission

limitations for a source can be found in Table 3.1 of the
GEP Technical Support Document.

BPIP (Dated: 04274)
DATE : 9/ 3/2015
TIME : 16:53:26

IP EASTOVER SC - NAAQS ANALYSIS

BPIP output is in meters

```
SO BUILDHGT 382A331A   71.02   57.00   57.00   45.42   41.76   33.22
SO BUILDHGT 382A331A   33.22    0.00    0.00    0.00   33.22   59.59
SO BUILDHGT 382A331A   59.59   59.59   59.59   59.59   59.59   59.59
SO BUILDHGT 382A331A   71.02   57.00   57.00   45.42   41.76   33.22
SO BUILDHGT 382A331A   33.22    0.00    0.00    0.00   33.22   59.59
SO BUILDHGT 382A331A   59.59   59.59   59.59   59.59   59.59   59.59
SO BUILDWID 382A331A   49.87   64.59   61.93   46.34   47.16   69.03
SO BUILDWID 382A331A   51.04    0.00    0.00    0.00   86.14   72.60
SO BUILDWID 382A331A   72.84   70.86   66.74   60.59   57.41   56.00
SO BUILDWID 382A331A   49.87   64.59   61.93   46.34   47.16   69.03
SO BUILDWID 382A331A   51.04    0.00    0.00    0.00   86.14   72.60
SO BUILDWID 382A331A   72.84   70.86   66.74   60.59   57.41   56.00
SO BUILDLEN 382A331A   48.14   70.15   72.60   43.35   43.36  112.87
SO BUILDLEN 382A331A  111.24    0.00    0.00    0.00  115.59   54.97
SO BUILDLEN 382A331A   55.04   53.44   50.21   45.46   50.64   59.00
SO BUILDLEN 382A331A   48.14   70.15   72.60   43.35   43.36  112.87
SO BUILDLEN 382A331A  111.24    0.00    0.00    0.00  115.59   54.97
SO BUILDLEN 382A331A   55.04   53.44   50.21   45.46   50.64   59.00
SO XBADJ    382A331A  -93.68 -106.55  -98.76 -106.73 -124.59  -98.83
SO XBADJ    382A331A  -90.53    0.00    0.00    0.00  -59.80   37.68
SO XBADJ    382A331A   46.02   52.96   58.30   61.86   59.42   53.29
SO XBADJ    382A331A   45.54   36.41   26.17   63.38   81.24  -14.04
SO XBADJ    382A331A  -20.71    0.00    0.00    0.00  -55.79  -92.65
SO XBADJ    382A331A -101.06 -106.40 -108.51 -107.32 -110.06 -112.29
SO YBADJ    382A331A  -42.79  -44.86  -56.46  -40.66  -43.26  -31.62
SO YBADJ    382A331A  -38.23    0.00    0.00    0.00  -57.78  -62.46
SO YBADJ    382A331A  -51.55  -39.07  -25.40  -10.96    5.93   23.97
SO YBADJ    382A331A   42.79   44.86   56.46   40.66   43.26   31.62
SO YBADJ    382A331A   38.23    0.00    0.00    0.00   57.78   62.46
SO YBADJ    382A331A   51.55   39.07   25.40   10.96   -5.93  -23.97

SO BUILDHGT 371A       27.13   27.13   27.13   12.19   12.19   12.19
SO BUILDHGT 371A        0.00    0.00    0.00    0.00    0.00   27.13
SO BUILDHGT 371A       27.13   27.13   27.13   27.13   27.13   27.13
SO BUILDHGT 371A       27.13   27.13   27.13    0.00    0.00    0.00
SO BUILDHGT 371A        0.00    0.00    0.00    0.00    0.00   27.13
SO BUILDHGT 371A       27.13   27.13   27.13   27.13   27.13   27.13
SO BUILDWID 371A       43.68   42.03   39.11   37.07   33.37   28.66
```

SO	BUILDWID	371A	0.00	0.00	0.00	0.00	0.00	40.25
SO	BUILDWID	371A	41.83	42.51	42.41	42.21	42.98	44.00
SO	BUILDWID	371A	43.68	42.03	39.11	0.00	0.00	0.00
SO	BUILDWID	371A	0.00	0.00	0.00	0.00	0.00	40.25
SO	BUILDWID	371A	41.83	42.51	42.41	42.21	42.98	44.00
SO	BUILDLEN	371A	33.13	37.26	40.25	39.69	39.20	37.52
SO	BUILDLEN	371A	0.00	0.00	0.00	0.00	0.00	39.11
SO	BUILDLEN	371A	15.00	29.81	25.29	21.70	23.52	28.00
SO	BUILDLEN	371A	33.13	37.26	40.25	0.00	0.00	0.00
SO	BUILDLEN	371A	0.00	0.00	0.00	0.00	0.00	39.11
SO	BUILDLEN	371A	15.00	29.81	25.29	21.70	23.52	28.00
SO	XBADJ	371A	-53.27	-51.63	-48.42	-84.35	-85.86	-84.76
SO	XBADJ	371A	0.00	0.00	0.00	0.00	0.00	10.16
SO	XBADJ	371A	34.66	23.45	29.13	32.64	29.68	25.29
SO	XBADJ	371A	20.14	14.37	8.17	0.00	0.00	0.00
SO	XBADJ	371A	0.00	0.00	0.00	0.00	0.00	-49.26
SO	XBADJ	371A	-49.66	-53.27	-54.42	-54.34	-53.20	-53.29
SO	YBADJ	371A	-17.48	-23.96	-29.71	15.75	4.31	-7.26
SO	YBADJ	371A	0.00	0.00	0.00	0.00	0.00	-28.29
SO	YBADJ	371A	-19.50	-16.47	-10.06	-3.94	3.14	10.47
SO	YBADJ	371A	17.48	23.96	29.71	0.00	0.00	0.00
SO	YBADJ	371A	0.00	0.00	0.00	0.00	0.00	28.29
SO	YBADJ	371A	19.50	16.47	10.06	3.94	-3.14	-10.47

SO	BUILDHGT	372A	27.13	27.13	27.13	27.13	27.13	27.13
SO	BUILDHGT	372A	27.13	27.13	40.23	40.23	40.23	40.23
SO	BUILDHGT	372A	40.23	27.13	27.13	27.13	27.13	27.13
SO	BUILDHGT	372A	27.13	27.13	27.13	27.13	27.13	27.13
SO	BUILDHGT	372A	27.13	27.13	40.23	40.23	40.23	40.23
SO	BUILDHGT	372A	40.23	27.13	27.13	27.13	27.13	27.13
SO	BUILDWID	372A	43.68	42.03	39.11	34.99	29.81	25.29
SO	BUILDWID	372A	21.70	23.52	19.00	20.10	20.59	20.45
SO	BUILDWID	372A	19.70	42.51	42.41	42.21	42.98	44.00
SO	BUILDWID	372A	43.68	42.03	39.11	34.99	29.81	25.29
SO	BUILDWID	372A	21.70	23.52	19.00	20.10	20.59	20.45
SO	BUILDWID	372A	19.70	42.51	42.41	42.21	42.98	44.00
SO	BUILDLEN	372A	33.13	37.26	40.25	42.02	42.51	42.41
SO	BUILDLEN	372A	42.21	42.98	12.00	11.06	11.79	13.56
SO	BUILDLEN	372A	15.00	29.81	25.29	21.70	23.52	28.00
SO	BUILDLEN	372A	33.13	37.26	40.25	42.02	42.51	42.41
SO	BUILDLEN	372A	42.21	42.98	12.00	11.06	11.79	13.56
SO	BUILDLEN	372A	15.00	29.81	25.29	21.70	23.52	28.00
SO	XBADJ	372A	-25.26	-24.46	-22.92	-20.68	-17.81	-15.10
SO	XBADJ	372A	-13.12	-11.03	16.97	19.77	19.98	19.57
SO	XBADJ	372A	18.58	3.61	6.13	7.19	2.54	-2.71
SO	XBADJ	372A	-7.87	-12.80	-17.33	-21.34	-24.70	-27.31
SO	XBADJ	372A	-29.09	-31.96	-28.97	-30.84	-31.77	-33.14
SO	XBADJ	372A	-33.58	-33.43	-31.42	-28.89	-26.06	-25.29
SO	YBADJ	372A	-15.08	-16.73	-17.88	-18.48	-18.52	-18.78
SO	YBADJ	372A	-18.04	-14.30	-13.79	-9.77	-5.44	-0.96
SO	YBADJ	372A	3.56	3.44	6.11	7.99	10.47	12.97
SO	YBADJ	372A	15.08	16.73	17.88	18.48	18.52	18.78
SO	YBADJ	372A	18.04	14.30	13.79	9.77	5.44	0.96
SO	YBADJ	372A	-3.56	-3.44	-6.11	-7.99	-10.47	-12.97

```
SO BUILDHGT 381A501A   45.42   41.76   41.76   33.22   33.22   33.22
SO BUILDHGT 381A501A   33.22    0.00   33.22   59.59   59.59   59.59
SO BUILDHGT 381A501A   59.59   59.59   59.59   59.59   57.00   45.42
SO BUILDHGT 381A501A   45.42   41.76   41.76   33.22   33.22   33.22
SO BUILDHGT 381A501A   33.22    0.00   33.22   59.59   59.59   59.59
SO BUILDHGT 381A501A   59.59   59.59   59.59   59.59   57.00   45.42
SO BUILDWID 381A501A   92.51   47.16   48.64   98.23   84.92   69.03
SO BUILDWID 381A501A   51.04    0.00   56.00   65.57   70.15   72.60
SO BUILDWID 381A501A   72.84   70.86   66.74   60.59   60.77   92.00
SO BUILDWID 381A501A   92.51   47.16   48.64   98.23   84.92   69.03
SO BUILDWID 381A501A   51.04    0.00   56.00   65.57   70.15   72.60
SO BUILDWID 381A501A   72.84   70.86   66.74   60.59   60.77   92.00
SO BUILDLEN 381A501A   71.42   49.38   48.84  105.89  111.07  112.87
SO BUILDLEN 381A501A  111.24    0.00  119.00   52.89   53.23   54.97
SO BUILDLEN 381A501A   55.04   53.44   50.21   45.46   50.64   60.00
SO BUILDLEN 381A501A   71.42   49.38   48.84  105.89  111.07  112.87
SO BUILDLEN 381A501A  111.24    0.00  119.00   52.89   53.23   54.97
SO BUILDLEN 381A501A   55.04   53.44   50.21   45.46   50.64   60.00
SO XBADJ    381A501A  -91.19 -101.69  -95.20  -59.80  -53.36  -45.30
SO XBADJ    381A501A  -35.86    0.00  -27.03   63.09   71.25   74.21
SO XBADJ    381A501A   74.93   73.37   69.57   63.67   51.71   36.29
SO XBADJ    381A501A   19.77   52.30   46.36  -46.09  -57.71  -67.58
SO XBADJ    381A501A  -75.39    0.00  -91.97 -115.99 -124.48 -129.19
SO XBADJ    381A501A -129.97 -126.80 -119.79 -109.13 -102.35  -96.29
SO YBADJ    381A501A  -66.54  -29.06  -41.99  -44.66  -44.46  -42.90
SO YBADJ    381A501A  -40.04    0.00  -38.29  -52.55  -37.72  -21.74
SO YBADJ    381A501A   -5.10   11.69   28.13   43.72   57.66   55.97
SO YBADJ    381A501A   66.54   29.06   41.99   44.66   44.46   42.90
SO YBADJ    381A501A   40.04    0.00   38.29   52.55   37.72   21.74
SO YBADJ    381A501A    5.10  -11.69  -28.13  -43.72  -57.66  -55.97


SO BUILDHGT 381C       71.02   71.02   71.02   71.02   71.02   71.02
SO BUILDHGT 381C       71.02   71.02   59.59   59.59   59.59   59.59
SO BUILDHGT 381C       59.59   59.59   59.59   59.59   59.59   59.59
SO BUILDHGT 381C       71.02   71.02   71.02   71.02   71.02   71.02
SO BUILDHGT 381C       71.02   71.02   59.59   59.59   59.59   59.59
SO BUILDHGT 381C       59.59   59.59   59.59   59.59   59.59   59.59
SO BUILDWID 381C       49.87   53.23   54.97   55.04   53.44   50.21
SO BUILDWID 381C       45.46   44.32   59.00   65.57   70.15   72.60
SO BUILDWID 381C       72.84   70.86   66.74   60.59   57.41   56.00
SO BUILDWID 381C       49.87   53.23   54.97   55.04   53.44   50.21
SO BUILDWID 381C       45.46   44.32   59.00   65.57   70.15   72.60
SO BUILDWID 381C       72.84   70.86   66.74   60.59   57.41   56.00
SO BUILDLEN 381C       48.14   49.81   49.97   48.61   45.78   41.55
SO BUILDLEN 381C       36.06   38.76   56.00   52.89   53.23   54.97
SO BUILDLEN 381C       55.04   53.44   50.21   45.46   50.64   59.00
SO BUILDLEN 381C       48.14   49.81   49.97   48.61   45.78   41.55
SO BUILDLEN 381C       36.06   38.76   56.00   52.89   53.23   54.97
SO BUILDLEN 381C       55.04   53.44   50.21   45.46   50.64   59.00
SO XBADJ    381C      -12.42  -13.67  -14.50  -14.89  -14.83  -14.32
SO XBADJ    381C      -13.38  -16.78  -32.31  -28.21  -28.31  -30.56
SO XBADJ    381C      -31.89  -32.24  -31.62  -30.04  -31.66  -34.21
SO XBADJ    381C      -35.72  -36.15  -35.47  -33.72  -30.94  -27.23
SO XBADJ    381C      -22.69  -21.98  -23.69  -24.68  -24.93  -24.41
```

SO XBADJ	381C	-23.15	-21.20	-18.59	-15.42	-18.98	-24.79
SO YBADJ	381C	0.25	1.69	3.07	4.37	5.52	6.52
SO YBADJ	381C	7.31	9.50	4.71	2.93	1.07	-0.83
SO YBADJ	381C	-2.70	-4.49	-6.14	-7.61	-6.73	-4.31
SO YBADJ	381C	-0.25	-1.69	-3.07	-4.37	-5.52	-6.52
SO YBADJ	381C	-7.31	-9.50	-4.71	-2.93	-1.07	0.83
SO YBADJ	381C	2.70	4.49	6.14	7.61	6.73	4.31

SO BUILDHGT	382B	71.02	71.02	71.02	71.02	71.02	71.02
SO BUILDHGT	382B	71.02	71.02	59.59	59.59	59.59	59.59
SO BUILDHGT	382B	59.59	59.59	59.59	59.59	59.59	59.59
SO BUILDHGT	382B	71.02	71.02	71.02	71.02	71.02	71.02
SO BUILDHGT	382B	71.02	71.02	59.59	59.59	59.59	59.59
SO BUILDHGT	382B	59.59	59.59	59.59	59.59	59.59	59.59
SO BUILDWID	382B	49.87	53.23	54.97	55.04	53.44	50.21
SO BUILDWID	382B	45.46	44.32	59.00	65.57	70.15	72.60
SO BUILDWID	382B	72.84	70.86	66.74	60.59	57.41	56.00
SO BUILDWID	382B	49.87	53.23	54.97	55.04	53.44	50.21
SO BUILDWID	382B	45.46	44.32	59.00	65.57	70.15	72.60
SO BUILDWID	382B	72.84	70.86	66.74	60.59	57.41	56.00
SO BUILDLEN	382B	48.14	49.81	49.97	48.61	45.78	41.55
SO BUILDLEN	382B	36.06	38.76	56.00	52.89	53.23	54.97
SO BUILDLEN	382B	55.04	53.44	50.21	45.46	50.64	59.00
SO BUILDLEN	382B	48.14	49.81	49.97	48.61	45.78	41.55
SO BUILDLEN	382B	36.06	38.76	56.00	52.89	53.23	54.97
SO BUILDLEN	382B	55.04	53.44	50.21	45.46	50.64	59.00
SO XBADJ	382B	-42.18	-43.74	-43.98	-42.88	-40.47	-36.84
SO XBADJ	382B	-32.09	-31.11	-41.83	-32.63	-27.49	-24.53
SO XBADJ	382B	-20.83	-16.50	-11.67	-6.48	-5.21	-5.67
SO XBADJ	382B	-5.96	-6.07	-6.00	-5.74	-5.31	-4.71
SO XBADJ	382B	-3.98	-7.65	-14.17	-20.26	-25.74	-30.44
SO XBADJ	382B	-34.21	-36.94	-38.55	-38.99	-45.43	-53.33
SO YBADJ	382B	4.67	0.87	-2.95	-6.69	-10.22	-13.44
SO YBADJ	382B	-16.25	-16.95	-23.83	-26.82	-29.00	-30.30
SO YBADJ	382B	-30.68	-30.13	-28.66	-26.31	-21.06	-13.83
SO YBADJ	382B	-4.67	-0.87	2.95	6.69	10.22	13.44
SO YBADJ	382B	16.25	16.95	23.83	26.82	29.00	30.30
SO YBADJ	382B	30.68	30.13	28.66	26.31	21.06	13.83

SO BUILDHGT	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	502A	0.00	33.22	59.59	59.59	59.59	59.59
SO BUILDHGT	502A	59.59	59.59	41.76	41.76	0.00	0.00
SO BUILDHGT	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	502A	0.00	33.22	59.59	59.59	59.59	59.59
SO BUILDHGT	502A	59.59	59.59	41.91	41.76	0.00	0.00
SO BUILDWID	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	502A	0.00	44.61	59.00	65.57	70.15	72.60
SO BUILDWID	502A	72.84	70.86	88.02	83.48	0.00	0.00
SO BUILDWID	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	502A	0.00	44.61	59.00	65.57	70.15	72.60
SO BUILDWID	502A	72.84	70.86	43.53	57.67	0.00	0.00
SO BUILDLEN	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	502A	0.00	115.28	56.00	52.89	53.23	54.97
SO BUILDLEN	502A	55.04	53.44	58.65	48.80	0.00	0.00

SO BUILDLEN	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	502A	0.00	115.28	56.00	52.89	53.23	54.97
SO BUILDLEN	502A	55.04	53.44	91.09	10.10	0.00	0.00
SO XBADJ	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	502A	0.00	22.98	99.97	111.53	114.64	111.25
SO XBADJ	502A	104.48	94.53	61.77	60.41	0.00	0.00
SO XBADJ	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	502A	0.00	-138.26	-155.97	-164.42	-167.87	-166.22
SO XBADJ	502A	-159.52	-147.97	-296.85	-109.04	0.00	0.00
SO YBADJ	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	502A	0.00	-33.82	-49.79	-27.77	-4.90	18.12
SO YBADJ	502A	40.58	61.81	36.18	52.35	0.00	0.00
SO YBADJ	502A	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	502A	0.00	33.82	49.79	27.77	4.90	-18.12
SO YBADJ	502A	-40.58	-61.81	-29.73	-39.44	0.00	0.00

SO BUILDHGT	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDLEN	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO XBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00
SO YBADJ	WAT12	0.00	0.00	0.00	0.00	0.00	0.00

To: Howard, Chris[Howard.Chris@epa.gov]
From: Cordes, Ben (EEC)
Sent: Thur 6/29/2017 5:37:40 PM
Subject: RE: SO2 DRR Modeling Files

Ok. It's in the mail.

Ben A. Cordes

From: Howard, Chris [mailto:Howard.Chris@epa.gov]
Sent: Thursday, June 29, 2017 1:13 PM
To: Cordes, Ben (EEC) <Ben.Cordes@ky.gov>
Subject: RE: SO2 DRR Modeling Files

Yep, addressed to me.

Thanks, Chris

From: Cordes, Ben (EEC) [mailto:Ben.Cordes@ky.gov]
Sent: Thursday, June 29, 2017 12:15 PM
To: Howard, Chris <Howard.Chris@epa.gov>
Subject: RE: SO2 DRR Modeling Files

Sure thing, Chris. I have copied them to a DVD. I'll be happy to mail them. Addressed to you?

Ben A. Cordes

From: Howard, Chris [mailto:Howard.Chris@epa.gov]
Sent: Thursday, June 29, 2017 11:46 AM
To: Cordes, Ben (EEC) <Ben.Cordes@ky.gov>

Subject: SO2 DRR Modeling Files

Ben:

I hope your day is going well. Would you be able to mail us a DVD with the revised SO2 DRR modeling files for Elmer Smith and Century Aluminum Hawesville?

We need them for our records and the ftp site is great it's just a little slow for the larger files.

Thx…Chris

Christopher M. Howard

Regional Meteorologist

US EPA Region 4

404-562-9036

To: Howard, Chris[Howard.Chris@epa.gov]
From: Cordes, Ben (EEC)
Sent: Thur 6/29/2017 4:15:13 PM
Subject: RE: SO2 DRR Modeling Files

Sure thing, Chris. I have copied them to a DVD. I'll be happy to mail them. Addressed to you?

Ben A. Cordes

From: Howard, Chris [mailto:Howard.Chris@epa.gov]
Sent: Thursday, June 29, 2017 11:46 AM
To: Cordes, Ben (EEC) <Ben.Cordes@ky.gov>
Subject: SO2 DRR Modeling Files

Ben:

I hope your day is going well. Would you be able to mail us a DVD with the revised SO2 DRR modeling files for Elmer Smith and Century Aluminum Hawesville?

We need them for our records and the ftp site is great it's just a little slow for the larger files.

Thx…Chris

Christopher M. Howard

Regional Meteorologist

US EPA Region 4

404-562-9036

To: Cordes, Ben (EEC)[Ben.Cordes@ky.gov]
From: Howard, Chris
Sent: Thur 6/29/2017 5:13:10 PM
Subject: RE: SO2 DRR Modeling Files

Yep, addressed to me.

Thanks, Chris

From: Cordes, Ben (EEC) [mailto:Ben.Cordes@ky.gov]
Sent: Thursday, June 29, 2017 12:15 PM
To: Howard, Chris <Howard.Chris@epa.gov>
Subject: RE: SO2 DRR Modeling Files

Sure thing, Chris. I have copied them to a DVD. I'll be happy to mail them. Addressed to you?

Ben A. Cordes

From: Howard, Chris [mailto:Howard.Chris@epa.gov]
Sent: Thursday, June 29, 2017 11:46 AM
To: Cordes, Ben (EEC) <Ben.Cordes@ky.gov>
Subject: SO2 DRR Modeling Files

Ben:

I hope your day is going well. Would you be able to mail us a DVD with the revised SO2 DRR modeling files for Elmer Smith and Century Aluminum Hawesville?

We need them for our records and the ftp site is great it's just a little slow for the larger files.

Thx…Chris

Christopher M. Howard

Regional Meteorologist

US EPA Region 4

404-562-9036

To: Howard, Chris[Howard.Chris@epa.gov]; Walther, Katherine[Walther.Katherine@epa.gov]; Rinck, Todd[Rinck.Todd@epa.gov]; Krivo, Stan[Krivo.Stanley@epa.gov]
From: Gillam, Rick
Sent: Thur 6/8/2017 8:20:52 PM
Subject: FW: Responses to Comments - SO2 Data Requirement Rule Modeling
SO2 DRR response to comments support files.piz

In case something would come up regarding NC SO2 issues while I am out, here are the responses that Tom Anderson provided recently. I'm thinking it can probably wait until I return, but just in case…

See you in a couple weeks.

Thanks,

Rick

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Thursday, June 1, 2017 7:14 AM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

10-4. See if this one goes through. If it doesn't I can load it to our ftp server.

TA

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Wednesday, May 31, 2017 3:25 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: RE: Responses to Comments - SO2 Data Requirement Rule Modeling

Hi Tom,

Thanks for the responses. Unfortunately, for security reasons our email system stripped your .zip file and it was not delivered. Please rename to an extension other than .zip or .exe and it should come through fine.

Thanks,

-Rick

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Wednesday, May 31, 2017 3:15 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Cc: Michael Pjetraj <michael.pjetraj@ncdenr.gov>; Coughlin, Patrick W <Patrick.Coughlin@duke-energy.com>; Knudsen, Kris W <Kris.Knudsen@duke-energy.com>; Nancy Jones <nancy.jones@ncdenr.gov>; Porter, Matthew k <Matthew.Porter@ncdenr.gov>; Zarnowski, Alexander R <alexander.zarnowski@ncdenr.gov>
Subject: Responses to Comments - SO2 Data Requirement Rule Modeling

Rick,

I have provided responses to your comments, in red text below each of your comments, regarding the SO2 DRR modeling for the Duke Energy facilities. Additionally, I have attached a .zip file that contains several files referenced in my comments.

Please let me know if you have any further questions or require additional information.

Thanks,

Tom A.

From: Gillam, Rick [mailto:Gillam.Rick@epa.gov]
Sent: Thursday, May 25, 2017 3:10 PM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Cc: Rinck, Todd <Rinck.Todd@epa.gov>; Worley, Gregg <Worley.Gregg@epa.gov>; Kemker, Carol <Kemker.Carol@epa.gov>
Subject: RE: Review Comments - SO2 Data Requirement Rule Modeling Comments

Hi Tom,

Pursuant to a phone conversation between Mike Abraczinskas and Carol Kemker, I have gone through the comments Stan sent you previously and pared them down to the most significant issues where we need further information to complete our analysis. The revised list is provided below. Please give me a call to discuss when you have a chance.

Thanks,

Rick

Duke Energy Marshall Steam Station

1) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to

replace/substitute missing actual emissions.

SO2 emissions were obtained from Duke Energy staff.

Duke Response: The SO2 emissions data were obtained from the data reported by our CEMS, using the same data base that is reported to the EPA Clean Air Markets Division (CAMD). All substituted values are as reported to CAMD in accordance with Part 75 requirements. SO2 data availability was 98.9% or greater for all stacks during this period.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual values.

Hourly varying stack parameters were obtained from Duke Energy staff.

Duke Response: The hourly stack exit velocity was calculated using Part 75 CEMS data. CEMS monitor data availability for flow measurement was 99.5% or greater for all stacks during this period. The hourly exit velocity was calculated from the hourly flow and stack temperature data using the following equation.

V msec=A STD ft3hr x hr60 min x min60 sec x B+480528 x π x D22x 0.3048 m3ft3

Where:

V is the stack exist velocity in meter/sec

A is the Part 75 stack flow rate in standard cubic feet per hour

B is the stack gas temperature in degree F

D is the stack diameter in feet

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 8, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Allen Steam Station

1) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 9, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

Duke Energy Mayo Electric Generating Plant

1) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

The text in Section 7, page 4, of the modeling report that indicates that the two boilers vent to individual stacks is an error. The statement was simply an inadvertent carryover from another report that was used as a template and the two boilers do indeed vent from only a single stack.

2) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM

data for period 2013-2015, etc.). Additionally, the hourly emissions files used in the modeling should be provided for review.

A file including all SO2 sources within 50 km is attached to this message (filename: Duke SO2 Inventories_Actuals.xls). Section 9, page 6, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

The hourly emission rates for both the Duke – Roxboro units and the CPI units were obtained from actual CEM data for the period 2013-2015 and were obtained from EPA's Clean Air Markets Database (https://ampd.epa.gov/ampd/).

The hourly emissions file used in the modeling is attached to this message (filename: mayo_hourly emissions SO2.txt)

Duke Energy Belew Creek Generating Station

1) Modeled Emissions

- * Missing CEMS stack temperatures were replaced with an average stack temperature determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

Duke Response: Use of "before and after" temperatures might be appropriate for short periods of missing data where the operating conditions are similar during the missing period, but for longer periods of missing data, an average temperature is a more appropriate representation since the operating conditions (minimum to maximum generating load and heat input) may vary significantly over time . Also, due to the continuous operation of the wet scrubbers, there is a relatively small range of temperature variation (average 121 °F with standard deviation of 3.5 °F) and there should be little impact on the modeling whether using the average temperature or a temperature based on the period before and after.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum

guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

Duke Response: The two auxiliary boilers combust fuel oil that is exclusively the ULSD fuel oil supply that is commercially available in the region. The maximum emissions rate for these boilers is 0.27 lb/hr each. The emissions rate for the Belews Creek Units 1 and 2 EGU boilers operating at maximum averages approximately 1,200 lb/hr, with a typical range (95% of data) between 600 to 2000 lb/hr.

2) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

Duke Response: A file including all SO2 sources within 50 km is attached to this message (filename: BCInventory010517.xlsx). Section 13, pages 22-25, of the modeling report describes how nearby sources were evaluated for inclusion in the analysis.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

Attached are two files to support the exclusion of the boilers from the modeling – 1) a 2015 Permit Review in which removal of the boilers is discussed and, 2) the latest 2017 Compliance Inspection Report that shows all permitted sources at the facility.

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

•□□□□□□□□ The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

Duke Response: The modeled emissions rate was estimated by dividing the reported annual emissions over the period from 2013 to 2015 by 8760 hour/year. The inventory did not provide information on the hours of operation, therefore 8,760 hours of operation was used to estimate the lbs/hr emissions rate used in the modeling .

From: Anderson, Tom [mailto:tom.anderson@ncdenr.gov]
Sent: Friday, May 12, 2017 1:44 PM
To: Gillam, Rick <Gillam.Rick@epa.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

FYI.

From: Anderson, Tom
Sent: Thursday, April 27, 2017 11:53 AM
To: Abraczinskas, Michael <michael.abraczinskas@ncdenr.gov>; Pjetraj, Michael <michael.pjetraj@ncdenr.gov>; Strait, Randy P <randy.strait@ncdenr.gov>; Masemore, Sushma <sushma.masemore@ncdenr.gov>
Cc: Willets, William <william.willets@ncdenr.gov>
Subject: FW: Review Comments - SO2 Data Requirement Rule Modeling Comments

Shall we convene to discuss how we should respond to Stan's comments? None of his comments are likely to require any re-modeling nor make any difference at all in any modeled impacts if we do.

TA

From: Krivo, Stan [mailto:Krivo.Stanley@epa.gov]
Sent: Thursday, April 27, 2017 11:34 AM
To: Anderson, Tom <tom.anderson@ncdenr.gov>
Subject: Review Comments - SO2 Data Requirement Rule Modeling Comments

Tom,

As I indicated in our telephone call today, the follow are my observations and review comments on the air quality modeling provided four SO_2 Data Requirement Rule (DRR) sources (i.e., area modeling assessments) for the North Carolina 3rd round of SO_2 attainment designations. Only the comments preceded by an asterisk request additional information, clarification, and/or analyses.

Duke Energy Marshall Steam Station

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Marshall Steam Station appear not to have been performed. The determination was apparently made based on the qualitative review of the satellite imagery of land use types provided Figure 3.

- *Although the determination of rural mode for the Marshall facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Marshall Source Parameters

- *Actual SO_2 emissions were used in the impact assessment. Information on the quality and completeness of these data should be provided as well as the procedures used to replace/substitute missing actual emissions.

- *Varying stack exit parameters were indicated used in the modeling. Information on the quality and completeness of these data should be provided as well as the procedures used to

replace/substitute missing actual values.

3) Intermittent Emission Sources

- Duke-Marshall's two emergency generators, emergency water pump, and emergency air compressor were considered as intermittent emission sources based on their frequency of operation and magnitude of SO_2 emissions. The magnitude of their operation during the years 2013-2015 were provided in Table 2.

- *The basis for the reported emissions in Table 2 should be provided (e.g., routine maintenance/testing operations). The frequency and duration of routine operational testing of each unit should be provided to support their classification as intermittent emission units.

4) Receptor Grids

- *To ensure identification of the controlling concentration, the maximum concentration and all concentrations challenging the maximum concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *The reason the 2013-2015 NCDAQ emission inventory was used in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

6) Model Results

- *The location of the modeled design value concentration should be provided to ensure it was in a grid of 100-m resolution.

<u>Duke Energy Allen Steam Station</u>

1) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Allen Steam Station was not performed. The determination was made based on the qualitative review of the aerial satellite image provided in Figure 3.

- *Although the determination of rural mode for the Allen facility may be appropriate, a quantitative land use characterization should be provided for documentation.

2) Receptor Grids

- *The controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) should be modeled in grid of 100-m resolution.

3) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the basis for their elimination. This information is needed to evaluate the appropriateness of the procedures used.

- *Although the provided qualitative assessment results confirmed the assumption that Resolute Paper's impacts would be less than those from Duke Marshall, Resolute Paper has SO_2 emissions of over 2,000 TPY resulting in a Q/D of 66. Based on this information, Resolute Paper should have been included in the cumulative assessment to characterize the background SO_2 conditions about Duke Allen Steam Station.

- *Use of the 20D procedure, as indicated in Table 3, identifies the inclusion of the Resolute Paper facility in the cumulative impact modeling. Note that the emissions from sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The reason and appropriateness of the 2013-2015 NCDAQ's emission inventory use in this assessment should be explained. Emission sources permitted prior to 2013 and subsequent to 2015 should be considered for inclusion in the cumulative impact assessment.

- *Although actual hourly emissions from CEMS on the Duke Marshall facility were used in the cumulative modeling, the emission rates for other nearby sources (e.g., Resolute Paper) included in the modeling would be based only on the maximum annual emissions for the 2013-2015 period. Because state/county emission inventories generally only contain annual allowable emission rates, the basis and appropriateness for the modeled hourly emission rates and stack parameters for these emission sources should be provided and discussed.

Duke Energy Mayo Electric Generating Plant

1) Model Selection

- *The AERMAP version number was indicated to be 11130. Because the correct number is 11103, confirmation is needed that the correct model version was used.

2) Meteorological Data

- *The surface and upper air NWS stations that were considered for the Duke-Mayo impact assessment should be provided along with the specific reason(s) the Danville Regional Airport and Greensboro upper air station were selected.

- *The surface moisture was characterized as average based the comparison of monthly precipitation totals for the 2013-2015 data period to the 30-year data record. The specific precipitation information should be provided (e.g., table containing these values for comparison) to support/document this determination.

3) Rural/Urban Project Area Determination

- The determination of the appropriate dispersion mode to use in the air quality modeling should be based of the characterization of the land use types within 3 km of the project location. A quantitative analysis of the land use types about the Mayo Electric Generating Plant was not performed. The determination was made based on the qualitative review of the available satellite imagery provided Figure 2.

- *Although the determination of rural mode for the Mayo facility may be appropriate, a quantitative land use characterization should be provided for documentation.

4) Receptor Grids

- *The controlling concentration was indicated to have been located within 100-meter spacing (i.e., within 3 km). To ensure this value is the controlling concentration, confirmation is needed that all concentrations challenging the controlling concentration (e.g., within 10%) were also modeled in grids of 100-m resolution.

5) Facility Layout.

- *Confirmation is needed that the identified boundary in Figure 3 is actually a fence line, or property line with barriers to public access so it can be considered non-ambient air (i.e., area not included in the impact assessment). Non-ambient air must be separated from public access by some form of barrier.

6) Intermittent Emission Sources

- The exclusion of the emergency generator and Quench pump for the impact assessment was based on the Table 2 estimated/calculated maximum emission rates. The bases for these calculations was indicated to be NC DAQ IC Spreadsheets using 0.0015% ULSD.

- Table 2 maximum SO_2 hourly emission rate and maximum annual emissions would indicate annual operations of 7.5 hours for the emergency generator and 40 hours for the emergency quench pump.

- *Exclusion of these sources should be based on their past operation and emissions/fuel used during the 2013-2015 modeled period. The actual hours of operation and emission rates during this period should be provided to document and support their exclusion as intermittent sources.

7) Modeled Emissions

- *The Mayo facility was indicated to operate two coal-fired boilers each vented to individual stacks. Figure 3 is indicated to provide the location of buildings, stacks, and the facility fence line. Based on Figures 3 & 4 and the modeling files, there is only one stack. These differences should be explained.

8) Other Nearby SO_2 Emission Sources

- *The basis for the hourly emission rates developed for the Duke-Roxboro Units 1-4 and CPI-Roxboro Units 1A, 1B, and 1C should be provided/ explained (e.g., actual emission from CEM data for period 2013-2015, etc.).

<u>Duke Energy Belew Creek Generating Station</u>

1) Rural/Urban Project Area Determination

- *The determination of the appropriate dispersion mode to use in the air quality modeling

should be based of the characterization of the land use types within 3 km of the project location. The determination was indicated to be bases on this type of assessment. Documentation of this quantitative assessment is needed to support the rural determination (e.g., figure(s) providing the land use characterizations).

2) Bowen Ratio Moisture Determination

- *The percentile labels in Table 4 (Greensboro 70th and 30th Percentile of Precipitation) appear to have been reversed (i.e., 70th percentile should have 70 percent of the observations less than or equal to the value while the 30 percentile value should have 30 percent of the observations equal to or less than the value).

- *Table 5 appears to have an incorrect moisture determined for March 2014. It appears that this year/period was "WET".

- *The effect of the above apparent discrepancies on the provided impact assessments should be addressed.

3) Receptor Grids

- *Confirmation is needed that controlling concentration and all concentrations challenging the controlling concentration (e.g., within 10%) were modeled in grids of 100-m resolution.

4) Modeled Emissions

- *Table 6 provides the Belews Creek boiler emissions. These emissions are only provided in TPY for the years 2013-2015. Section 11.3 indicated prior to 2015 the sulfur content for the Auxiliary Boilers (ES-3 and ES-4) was 0.05% sulfur. The reason 0.5% sulfur (table footnote) was used for the annual TPY provided in Table 6 should be provided.

- *Although the maximum hourly SO_2 emissions for the six emergency engines provided in Table 7 appears small, they should be compared to the maximum hourly emissions from the boilers to determine if the routine maintenance operation of these engines could affect the annual distribution of the daily maximum 1-hour average concentrations. Each engine is indicated to be permitted for up to 100 hours of routine maintenance operation per year. Their actual operational characteristics for routine maintenance operation (e.g., separate operation of each engine less than one hour per week) during the modeled period should be provided to support treating them as intermittent sources for this modeling assessment.

- * Missing CEMS stack temperatures were replaced with an average stack temperature

determined from the CEMS data (i.e., 120 degrees F). If the data record has many missing values, use of the recorded actual stack temperatures about the missing value(s) to developed replacements would be more appropriate.

- *Because of ultra-low sulfur fuel oil was indicated to have been used for the Auxiliary Boilers in 2015, the maximum hourly SO_2 emissions were 0.57 lbs./hr. For the other years, the maximum hourly emission rate was indicated to be 176 lbs/hr using 0.05% sulfur fuel oil. An explanation is needed because Table 6 indicates 0.5% sulfur oil was used.

- *These Auxiliary Boilers were modeled using the EPA Clarifications Memorandum guidance on intermittent sources that annualizes the emissions for the full year, to obtain an annual average hourly value used for each hour of the year. These boilers were indicated to only operate when the coal-fired Utility Boilers are not operating or just starting up (i.e., no simultaneous operations). If simultaneous operations are not possible and the coal-fired boilers have much larger SO_2 hourly emissions than fuel oil-fired boilers, the operation of Auxiliary Boilers (ES-3 and ES-4) should not be controlling. A comparison of the maximum SO_2 emission rates for these boilers should be provided. Because of the lower stack height for ES-3/4 boilers, the maximum impacts of the oil-fired and coal-fired boilers may be needed to demonstrate the appropriateness of treating the Auxiliary Boilers as intermittent sources.

5) Other Nearby SO_2 Emission Sources

- *The emission inventory of all nearby emissions sources considered should be provided. The sources eliminated should be identified along with the reason/basis for their elimination to support the appropriateness of the procedures used.

- *Although appearing appropriate, the basis for using target values of 1 TPY (Actual Emissions) within 25 km and 50 TPY (Actual Emissions) between 25 km to 50 km to include sources was not provided or explained. Nether was the use of the "significant concentration gradient" procedure. The bases for both these procedures should be provided and explained.

- *Considering most State/Local inventories of emission sources contain only allowable emissions, the procedure/process used to obtain applicable actual emissions (e.g., annual and 1-hour values) for 2013-2015 modeled period, used in both the screening of the Table 9 nearby sources and subsequent impact modeling (i.e., Ingredion Incorporated and Hanes Dye & Finishing Company), should be provided. [Note: The 20D procedure was developed/defined considering facility's total annual allowable emissions in TPY.]

- *Impact modeling was used to eliminate Ingredion Incorporated and Hanes Dye & Finishing Company from the cumulative impact assessment. Specific modeling information (e.g., emission rates, exit parameters, etc.) should be provided as well as the modeling results. The resulting isopleth maps and concentration gradient analyses used in this assessment should be provided. The maximum, not the 4th highest, modeled concentrations should be used in these analyses.

- *Documentation on the 2015 permit removal of the 4 coal-fired boilers at Millers Coors Brewery should be provided to support this source's exclusion from the modeling assessment..

- *Section 13.1 indicates maximum annual emissions over the 2013-2015 period were used in the modeling of nearby emission sources. This does not appear to agree with Section 13.0 indication that actual emissions were used. The report should clearly indicate the basis of the emissions for each nearby source used in the screening process and in the impact modeling assessment. Also, the following information is needed:

o The reason the assumption of 8,760 hours of operation for years 2013 -2015 is appropriate.

o The reason permit estimated emission rates for the melt, casting, and arc furnaces emitted from roof vents are appropriate for permit application and not actuals during the 2013-2015 period.

- *The screening procedures for the removal of nearby sources from the cumulative impact modeling should consider the magnitude of each source's impact within Belew's SIA and not just at the Belew facility location. This analysis should consider the facility's maximum impacts rather than maximum in the form of each standard (e.g., 4th highest).

- It appears that actual emissions were used for most or all nearby sources.

- *The 20D procedure is indicated in Table 9 and appears to have been used to further screen emission sources. Note that the Q value should be the maximum allowable annual emissions in TPY. Actual emissions are not appropriate for the 20D procedure. The annual allowable emissions from all sources in close proximity should be combined – considered one sources – in the 20D assessment.

- *The isopleth map showing the concentration gradient was not provided and explained. The location of the Table 9 sources in Figure 11 do not reflect the distances provided in the table.

- *The significant concentration gradient (SCG) in the vicinity of the Belews Creek Generating Station was used to determine the other SO_2 emission sources to include in the air quality impact assessment. The specific target values and procedures used in this determination the SCGs should be provided.

- *The significant impact levels (SIL) and 20D procedure have also been used in the identification of other emission facilities to include in a cumulative impact assessment. Given the sometimes conflicting results using these procedures, the criteria used in this determination should be provided.

Please let me know if you have any questions or would like to discuss any item.

Thanks…sjk

Stanley Krivo, CCM, QEP

U.S. Environmental Protection Agency

Atlanta Federal Center

61 Forsyth Street, SW

Atlanta, GA 30303-8960

Phone: 404/562-9123

Fax: 404/562-9019

To: Snyder, Erik[snyder.erik@epa.gov]
Cc: Misenis, Chris[Misenis.Chris@epa.gov]; Thurman, James[Thurman.James@epa.gov]; Bridgers, George[Bridgers.George@epa.gov]; McCorkle, Mark[MAC@adeq.state.ar.us]; Montgomery, William[Montgomery@adeq.state.ar.us]; Shelton, Travis[shelton@adeq.state.ar.us]; Mohr, Ashley[Mohr.Ashley@epa.gov]; Imhoff, Robert[imhoff.robert@epa.gov]
From: Clark, David
Sent: Fri 6/30/2017 4:06:00 PM
Subject: RE: Arkansas Prognostic Met Data Performance Evaluation

Erik,

Also avoid Friday July 14 as our consultants will be unavailable on this day.

David

David W. Clark, M.S.

Epidemiologist

Air Division – Planning & Air Quality Analysis Branch
Arkansas Department of Environmental Quality

5301 Northshore Drive

North Little Rock, AR. 72118

U.S.A.

Voice: 501 682-0070

Fax: 501 682-0753

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From: Clark, David
Sent: Friday, June 30, 2017 9:01 AM
To: 'Snyder, Erik'
Cc: Misenis, Chris; Thurman, James; Bridgers, George; McCorkle, Mark; Montgomery, William; Shelton, Travis; Mohr, Ashley; Imhoff, Robert

Subject: RE: Arkansas Prognostic Met Data Performance Evaluation

Probably best to have everyone included, so I agree about shooting for the week of July 10-14. At this point we are available every day/time except Wed 2-3pm CST.

David

David W. Clark, M.S.

Epidemiologist

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From: Snyder, Erik [mailto:snyder.erik@epa.gov]
Sent: Friday, June 30, 2017 8:49 AM
To: Clark, David
Cc: Misenis, Chris; Thurman, James; Bridgers, George; McCorkle, Mark; Montgomery, William; Shelton, Travis; Mohr, Ashley; Imhoff, Robert
Subject: RE: Arkansas Prognostic Met Data Performance Evaluation

Sorry David, I have been under the gun on some internal deadlines and haven't had time to chase

down folks. Let me check internally on times next week and get back with you. I have not heard from everyone but I know Bob and Chris M. will be out next week but I'll check to see who will be available. The following week would probably work better though.

-Erik

Erik Snyder

Lead Regional Air Quality Modeler
EPA Region 6
Phone: 214-665-7305
Fax: 214-665-7263
email: snyder.erik@epa.gov

From: Clark, David [mailto:CLARKD@adeq.state.ar.us]
Sent: Thursday, June 29, 2017 12:44 PM
To: Snyder, Erik <snyder.erik@epa.gov>
Cc: Misenis, Chris <Misenis.Chris@epa.gov>; Thurman, James <Thurman.James@epa.gov>; Bridgers, George <Bridgers.George@epa.gov>; McCorkle, Mark <MAC@adeq.state.ar.us>; Montgomery, William <Montgomery@adeq.state.ar.us>; Shelton, Travis <shelton@adeq.state.ar.us>; Mohr, Ashley <Mohr.Ashley@epa.gov>; Imhoff, Robert <imhoff.robert@epa.gov>
Subject: RE: Arkansas Prognostic Met Data Performance Evaluation

Any suggestions on day/time?

David W. Clark, M.S.

Epidemiologist

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From: Clark, David
Sent: Friday, June 23, 2017 1:42 PM
To: 'Snyder, Erik'
Cc: 'Misenis.chris@Epa.gov'; 'Thurman.james@Epa.gov'; 'Bridgers.george@Epa.gov'; McCorkle, Mark; Montgomery, William; Shelton, Travis; Mohr, Ashley (Mohr.Ashley@epa.gov); 'Imhoff.robert@Epa.gov'
Subject: RE: Arkansas Prognostic Met Data Performance Evaluation

Erik,

We have conducted our WRF model performance evaluation and would like to set up a call with the group to discuss the results. We also intend to provide results documents ahead of time to help facilitate a more fruitful and efficient use of everyone's time. Next week (June 26-30), we are available M/W/F morning and M/Th/F afternoon. The week of July 3-7, we are available Friday morning and W/Th/F afternoon. Our consultants are on the west coast, so it would be best if we don't schedule the call before 10am CST and no later than 3pm CST for the EPA folks on the east coast.

David

David W. Clark, M.S.

Epidemiologist

Air Division – Planning & Air Quality Analysis Branch
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From: Clark, David
Sent: Friday, May 12, 2017 7:25 AM
To: 'Snyder, Erik'; Mohr, Ashley (Mohr.Ashley@epa.gov); 'Imhoff.robert@Epa.gov'
Cc: 'Misenis.chris@Epa.gov'; 'Thurman.james@Epa.gov'; 'Bridgers.george@Epa.gov'; McCorkle, Mark; Montgomery, William; Shelton, Travis
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Hello All,

Based on yesterday's conference call regarding our draft WRF Model Performance Evaluation protocol, attached is our revised protocol reflecting EPA's comments. We now plan to proceed with this work and will update this group when we have more information to share or if we need any further guidance. And as always, feel free to contact me with any updates.

Thank you again for everyone's assistance,

David

David W. Clark, M.S.

Epidemiologist

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From: Clark, David
Sent: Friday, May 05, 2017 10:51 AM
To: 'Snyder, Erik'
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Erik,

Tuesday afternoon no longer works for us. Does Thursday afternoon work for you guys? I'll have to check on Thursday afternoon with the consultants, but I won't hear back until Monday morning.

David

David W. Clark, M.S.

Epidemiologist

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From: Snyder, Erik [mailto:snyder.erik@epa.gov]
Sent: Friday, May 05, 2017 10:36 AM
To: Clark, David; Mohr, Ashley
Cc: McCorkle, Mark; Montgomery, William
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Does 2-3 on Tuesday work?

Erik Snyder

Lead Regional Air Quality Modeler
EPA Region 6
Phone: 214-665-7305
Fax: 214-665-7263
email: snyder.erik@epa.gov

From: Clark, David [mailto:CLARKD@adeq.state.ar.us]
Sent: Friday, May 05, 2017 10:08 AM
To: Snyder, Erik <snyder.erik@epa.gov>; Mohr, Ashley <Mohr.Ashley@epa.gov>
Cc: McCorkle, Mark <MAC@adeq.state.ar.us>; Montgomery, William <Montgomery@adeq.state.ar.us>
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Thank you Erik.

David W. Clark, M.S.

Epidemiologist

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From: Snyder, Erik [mailto:snyder.erik@epa.gov]
Sent: Friday, May 05, 2017 10:07 AM
To: Clark, David; Mohr, Ashley
Cc: McCorkle, Mark; Montgomery, William
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Hi David,

We did get the email and forward. I have not heard back from OAQPS on time for a call next week. I will follow-up with them and let you know.

-Erik

Erik Snyder

Lead Regional Air Quality Modeler
EPA Region 6
Phone: 214-665-7305
Fax: 214-665-7263
email: snyder.erik@epa.gov

From: Clark, David [mailto:CLARKD@adeq.state.ar.us]
Sent: Friday, May 05, 2017 10:03 AM
To: Mohr, Ashley <Mohr.Ashley@epa.gov>; Snyder, Erik <snyder.erik@epa.gov>
Cc: McCorkle, Mark <MAC@adeq.state.ar.us>; Montgomery, William <Montgomery@adeq.state.ar.us>
Subject: FW: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Erik & Ashley,

Can you please confirm for me that the below email made it to you?

David

David W. Clark, M.S.

Epidemiologist

Air Division – Planning & Air Quality Analysis Branch
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From: Clark, David
Sent: Thursday, April 27, 2017 7:52 AM
To: 'Mohr, Ashley'; Snyder, Erik

Cc: Montgomery, William; McCorkle, Mark; Shelton, Travis
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Erik & Ashley,

Attached is a protocol for a WRF Model Performance Evaluation for our Independence County SO2 work. Could you please pass this along to others who were on our April 6 call -- James Thurman, Chris Misenis and George Bridgers, I believe.

Can we also schedule a follow-up call for feedback sometime during the week of May 8-12? We are available Monday morning, Tuesday afternoon, and Thursday afternoon.

David

David W. Clark, M.S.

Epidemiologist

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From: Mohr, Ashley [mailto:Mohr.Ashley@epa.gov]

Sent: Thursday, April 06, 2017 10:54 AM
To: Clark, David
Cc: Snyder, Erik
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Thanks David. I will pass along to others and talk with you all later today.

Thanks,

Ashley

THE POSITIONS or VIEWS CONTAINED IN THIS EMAIL DO NOT REPRESENT OFFICIAL EPA POLICY.

From: Clark, David [mailto:CLARKD@adeq.state.ar.us]
Sent: Thursday, April 06, 2017 10:53 AM
To: Mohr, Ashley <Mohr.Ashley@epa.gov>
Cc: Snyder, Erik <snyder.erik@epa.gov>
Subject: RE: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

Ashley & Erik,

Here is the Batesville Met data. The issue is the percent of "calms". Distribute to EPA's call attendees please.

David

David W. Clark, M.S.

Epidemiologist

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From: Mohr, Ashley [mailto:Mohr.Ashley@epa.gov]
Sent: Monday, April 03, 2017 4:02 PM
To: Clark, David
Cc: Snyder, Erik
Subject: Call In Details - Prognostic Met Data (Thursday, April 6th @ 1:00 PM)

David,

Here is the call in number information:

Number:

Passcode:

Ex. 6 - Personal Privacy

Just let us know what you find out regarding the data fill amount and frequency information that I mentioned on the phone.

If you have any other questions let me know. Otherwise, talk to you all on Thursday!

Ashley

Ashley N.Q. Mohr
Environmental Scientist
Air Permits Section (6MM-AP)
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, TX 75202
(214) 665-7289
FAX (214) 665-6762
mohr.ashley@epa.gov

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